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FARM CREDIT ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE
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MARKETING MAINE POTATOES

RETAIL DISTRIBUTION OF POTATOES
IN THE
BOSTON METROPOLITAN AREA,
MARCH 1940

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Preliminary Report

By

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COOPERATIVE RESEARCH AND SERVICE DIVISION
in cooperation with
MAINE AGRICULTURAL EXPERIMENT STATION

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FARM CREDIT ADMINISTRATION

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RETAIL DISTRIBUTION OF POTATOES IN THE BOSTON METROPOLITAN AREA, MARCH 1940

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In response to requests from potato growers, shippers, cooperative associations, and others in Maine for an analysis of their marketing problems in the Boston metropolitan area, a study was undertaken in the spring of 1940. ^{1/} This study was designed to show the relative position of Maine potatoes in that marketing area, the current preferences of consumers for pota-

atoes to be used in various ways, the marketing channels and practices being used by the wholesale and retail trade, and, to a limited extent, to determine how well the quality and variety separations made at shipping point were maintained along the route to the final consumer. As one part of this broad survey, there was included a study of the quantity, quality,

^{1/} This study was undertaken jointly by the Maine Agricultural Experiment Station and the Cooperative Research and Service Division of the Farm Credit Administration, United States Department of Agriculture.

NOTE: The author wishes to acknowledge the contributions of Maynard A. Hincks and other members of the staff of the Maine Agricultural Experiment Station; of R. L. Spangler and other members of the Agricultural Marketing Service, United States Department of Agriculture; and of members of the staff of the Cooperative Research and Service Division of the Farm Credit Administration, United States Department of Agriculture.

TABLE 1.- LOCATION AND OWNERSHIP OF 368 RETAIL STORES INCLUDED IN THE SAMPLE,
BOSTON METROPOLITAN AREA, MARCH 1940

LOCATION	NUMBER OF STORES				
	GROUP I <u>1/</u>		GROUP II <u>2/</u>		TOTAL
	<i>Independents</i>	<i>Large Chains <u>3/</u></i>	<i>Local Chains</i>	<i>Independents</i>	
City of Boston	70	80	20	33	203
Suburban area <u>4/</u>	53	74	23	15	165
Total area	123	154	43	48	368

1/ Taken from list mentioned by consumers.

2/ Taken as less important independent stores in assigned "shopping centers."

3/ Includes certain stores of the 3 large chain organizations.

4/ The suburban area included: Arlington, Belmont, Brookline, Cambridge, Chelsea, Everett, Malden, Medford, Melrose, Revere, Watertown, Winthrop and Somerville.

and methods of handling potatoes and some related commodities in 368 stores 2/.

Data were obtained from the sample stores during two different periods, one during March (running over into April) and one in June of 1940. The present preliminary report covers the March findings.

METHOD AND SCOPE OF STUDY

Each of the approximately 1,800 families interviewed in the consumer survey, separately reported 3/, was asked the name and address of the store in which the last purchase of potatoes was made. From this list, stores to be interviewed were se-

lected. This assured a sample representative of the stores from which the interviewed consumers bought potatoes. Records were obtained from 320 stores selected in this manner.

To show by contrast the characteristics of stores less important in the distribution of potatoes to the consumers interviewed, it was desirable to have a group of small stores not named by the consumers. For a few days, therefore, the enumerators were assigned certain "shopping centers" in which they were to get records from all the smaller, independent stores that handled potatoes. A sample of

2/ Some study of retail store distribution of potatoes was considered desirable because (1) retail practices provide some tangible evidence of the effectiveness of consumer demand, thus providing a basis for partially evaluating consumer preferences, (2) retailers' statements as to their customers' preferences give an indication as to whether or not retailers are aware of preferences that consumers may have, and whether or not their notions need possible modification in the light of the consumer survey, (3) determination of the characteristics of the type of stores which sold the most potatoes per store is desirable both to point out the kind of stores with which presumably it would be most profitable to work in a dealers' service program and also to point out those factors which tend to increase the volume of potatoes sold in any particular store, (4) the retail store is the most effective point at which to check the quality of potatoes being offered to consumers in connection with marked grades and prices, and (5) study of retail stores affords a part of the information concerning the entire market and the methods of distribution which would be necessary in developing any program of advertising, dealer-service work, or other merchandising activity directed toward improving retail distribution.

3/ Hincks, M. A., *Marketing Maine Potatoes: I - A Preliminary Report of Consumer Preferences for Potatoes in Boston, March 4 to April 6, 1940.* Maine Agr. Expt. Sta. and Maine Dev. Com. in cooperation with the Cooperative Research and Service Division, F. C. A., U. S. Dept. Agr. 40 pp. May 1940 (mimeographed).

Foelsch, G. G., and Sprague, G. W., *Marketing Maine Potatoes - Purchase and Use of Potatoes and Substitutes in Homes of Boston Consumers, March 4 to April 6, 1940.* Cooperative Research and Service Division, F. C. A., U. S. Dept. Agr. in cooperation with Maine Agr. Expt. Sta. 40 pp. September 1940 (mimeographed).

TABLE 2.- TYPE OF BUSINESS IN RELATION TO SALES OF FRESH FRUITS AND VEGETABLES,
FOR 368 RETAIL FOOD STORES, BOSTON METROPOLITAN AREA, MARCH 1940

KIND OF STORE ^{1/}	NUMBER OF STORES ACCORDING TO AVERAGE WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE				
	\$1 - 99	\$100 - 199	\$200 and over	Unknown	All stores
INDEPENDENT STORES:					
Group I:					
Combination	40	23	22	0	85
Groceries	15	1	4	2	22
Meat	2	2	1	0	5
Fruits and vegetables only	0	1	10	0	11
Group II:					
Combination	10	0	0	0	10
Groceries	29	1	0	0	30
Fruits and vegetables only	1	4	3	0	8
LARGE CHAINS:					
Combination	3	7	54	0	64
Groceries	43	35	12	0	90
LOCAL CHAINS:					
Combination	9	0	12	1	22
Groceries	11	6	3	0	20
Fruits and vegetables only	0	0	1	0	1
ALL STORES:					
Combination	62	30	88	1	181
Groceries	98	43	19	2	162
Meat	2	2	1	0	5
Fruits and vegetables only	1	5	14	0	20

^{1/} All stores carried potatoes; combination stores carried fresh meats and groceries also; groceries carried no fresh meats; meat stores carried no groceries; fruit and vegetable stores carried no groceries or fresh meats.

48 records was obtained from stores of this type. Records from stores assigned according to the former basis have been designated as group I stores in this report; records from those assigned on the latter basis, all independent stores, have been designated as group II. Table 1 shows the distribution of the store sample according to method of assignment, class of ownership, and approximate location.

Fifty-five percent of all the stores in the sample were within the city of Boston proper, and the rest were within the suburban area surrounding Boston. Com-

binning all chain stores, both members of the large chain systems and members of the local chains, it was found that slightly over half (54 percent) of the stores covered were members of chain systems. Within the city of Boston only, slightly over 49 percent of the number of stores included in the survey were chain stores. The total dollar sales of these chain stores accounted for approximately 80 percent of the combined sales of all stores contacted in Boston. The sample, however, includes a considerably higher proportion of chain stores than exists for all stores in the city of Boston ^{4/}.

^{4/} The 1935 Census of Retail Distribution indicates that not quite 30 percent of the groceries and combination groceries with meats in the city of Boston were chain stores and that dollar sales of these chains were about 53 percent of the total sales. Other types of food stores not classified as to chain or independent in this census included among others 105 delicatessen stores, 284 fruit and vegetable markets, and 330 meat and fish markets. The number of proprietors reported for these same stores in order were: 101, 282, and 325, indicating almost exclusively independent ownership. (Figures taken from "Retail Distribution," v.2, p. 119, Census of Business, 1935, U. S. Dept. of Commerce.)

Because of the method of selection used, the one significant characteristic common to all the stores included is the fact that potatoes were sold. Consequently, the sample is not intended to be representative of any class of food stores which would not be selling potatoes at the time of the survey, nor proportionately representative of any class of food stores in which some of the stores sold no potatoes at this time. The sample does provide, however, illustrations of certain characteristics of the more important stores selling potatoes.

There was considerable variation in type of business carried on by the stores included. About half of all the stores in the sample were of a combination type, carrying groceries and fresh meats in addition to fruits and vegetables (table 2). Grocery stores (without fresh meats) were the next most important class of stores and were particularly prominent among the chain organizations. The proportion of stores handling fresh meats, including both the combination and the specialized meat stores, was higher among stores of large fruit and vegetable volume than among the stores selling smaller quantities. Specialized fresh-fruit and vegetable stores in the sample usually sold at least \$200 worth per store per week.

SALES OF POTATOES AND OF ALL ITEMS IN RELATION TO SALES OF FRESH FRUITS AND VEGETABLES PER STORE

Because the volume of potatoes sold per store was expected to show considerable relationship to the sales of fruits and vegetables per store, and because it was desired to study the relationship between the quantities of fresh fruits and vegetables sold and the sales of other items, the store records were sorted into groups according to the average weekly sales (in dollars) of fresh fruits and vegetables 5/.

Table 3 shows that the total sales of all items in the store, per dollar of

sales of fresh fruits and vegetables, usually were greatest in the stores having the least fruit and vegetable sales. Pounds of potatoes sold per dollar of fruit and vegetable sales showed a similar relationship in March. These facts indicate that sales of other items probably do not keep pace with an increase in the amount of fresh fruit and vegetable sales. The relatively greater importance of fruit and vegetable sales in stores with large volume in this department may be partly the result of adding a wider variety of such items, particularly expensive items, and partly the result of a willingness to give this department more attention after a certain volume is reached. In the larger stores, this department is usually placed under the direction of a trained fruit and vegetable man.

Sales of potatoes and sales of items in other departments considered in relation to sales of fresh fruit and vegetables usually were larger in chain stores than in independent stores. Sales of potatoes and of all items in the store considered in relation to sales of fruits and vegetables usually were greater in stores of the three large systems than in the local chain stores, and larger in the independent stores mentioned as a source of potatoes by consumers (group I stores) than in stores not so mentioned (group II stores.)

Within the limits of the data for the 368 sample stores, no consistent relationship was discovered between the presence or absence of either fresh meats or of groceries and the relative quantity of potatoes sold in the store, provided the total dollar sales of all fresh fruits and vegetables remained the same. The most reliable test as to such relationships, if any, would require continuous observation of stores in which these lines were added or withdrawn during the course of observation. Such an analysis is not within the scope of the present study.

5/ It will be noted in most of the tables that the group range in dollar sales of fresh fruits and vegetables approximately doubles from group to group as the volume increases. After considerable experimentation as to the placing of the limit of the ranges for each group, the ranges shown were adopted to provide as nearly as possible in each group a sufficient number of stores to give some degree of confidence in the averages developed, and to provide a more detailed breakdown of the smaller sales groups to see whether or not any trends apparently associated with changes in volume of sales continued throughout the smaller breakdown.

TABLE 3.- AMOUNT OF TOTAL SALES OF ALL LINES, AND POUNDS OF POTATOES SOLD IN RELATION TO EACH DOLLAR OF SALES OF FRESH FRUITS AND VEGETABLES IN 358 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940 1/

GROUP RANGE IN AVERAGE WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	INDEPENDENTS						CHAINS					
	GROUP 1 2/			GROUP 11 3/			LARGE CHAINS			LOCAL CHAINS		
	STORES IN GROUP	SALES PER DOLLAR'S WORTH OF FRESH FRUITS AND VEGETABLES SOLD		STORES IN GROUP	SALES PER DOLLAR'S WORTH OF FRESH FRUITS AND VEGETABLES SOLD		STORES IN GROUP	SALES PER DOLLAR'S WORTH OF FRESH FRUITS AND VEGETABLES SOLD		STORES IN GROUP	SALES PER DOLLAR'S WORTH OF FRESH FRUITS AND VEGETABLES SOLD	
		POTATOES	ALL LINES		POTATOES	ALL LINES		POTATOES	ALL LINES		POTATOES	ALL LINES
	Number	Pounds	Dollars	Number	Pounds	Dollars	Number	Pounds	Dollars	Number	Pounds	Dollars
\$1-\$9	6	26	31	15	24	24	0	-	-	0	-	-
\$10-\$24	11	14	17	10	13	8	1	65	27	3	31	45
\$25-\$49	19	14	13	7	11	8	7	23	12	8	14	11
\$50-\$99	21	12	8	7	7	6	38	16	8	9	13	8
\$100-\$199	27	10	6	5	5	1	42	11	7	6	6	5
\$200-\$499	23	5	3	3	6	1	42	8	8	6	4	4
\$500-\$999	8	4	3	0	-	-	19	5	7	2	3	7
\$1,000 or more	3	3	1	0	-	-	5	3	7	5	10	10

1/ Includes only stores for which data in question were complete.

2/ Stores mentioned by consumers interviewed as source of potatoes in consumer survey.

3/ Stores not mentioned by consumers interviewed as source of potatoes in consumer survey.

TABLE 4.- DISTRIBUTION OF 368 RETAIL STORES ACCORDING TO RENTAL AREAS 1/,
BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUIT AND VEGETABLES PER STORE	NUMBER OF STORES IN -						SUB- URBAN AREA	TOTAL NUMBER OF STORES
	CITY OF BOSTON; AVERAGE MONTHLY RENTAL OF AREA -							
	<i>Less than \$15</i>	<i>\$15- \$19.99</i>	<i>\$20- \$29.99</i>	<i>\$30- \$39.99</i>	<i>\$40- \$49.99</i>	<i>\$50 or more</i>		
\$1-\$9	1	3	8	4	0	0	6	22
\$10-\$24	1	4	7	4	0	0	9	25
\$25-\$49	3	7	9	1	1	0	20	41
\$50-\$99	4	9	15	17	6	0	24	75
\$100-\$199	0	6	15	17	8	0	34	80
\$200-\$499	0	5	7	17	4	1	41	75
\$500-\$999	0	1	0	7	2	0	20	30
\$1,000 or more	0	1	2	3	1	0	10	17
Unknown	0	0	0	2	0	0	1	3
All stores, total	9	36	63	72	22	1	165	368
TOTALS BY TYPES OF STORES:								
Independent stores:								
Group I	3	14	21	24	7	1	53	123
Group II	4	8	14	7	0	0	15	48
Large chain companies	2	11	23	30	14	0	74	154
Local chain concerns	0	3	5	11	1	0	23	43

1/ Rental areas are based on the classification of areas made by the City Planning Board (Boston) in their August 1935 publication: "Report on real Property inventory, Boston 1934." These are rentals paid for occupied family dwelling units, not for business properties. A similar classification was not available for the suburban areas outside the city of Boston.

RELATION OF RENTAL AREA TO SALES

The general income level of the customers of a particular store exerts a considerable influence upon the nature of the business of that store and upon the total sales. While satisfactory income figures are not available for Boston, an approximately correct index of average incomes is the average monthly rental being paid for family dwelling units in a particular area. The city of Boston, divided into 127 areas or districts, has been classified according to the average monthly rental paid in a real property inventory made in 1934 6/. Using the rental classification there established, retail stores included in this study have been located in relation to rental areas in table 4. The location of the combined types of stores shows that, as the amount of fruits

and vegetables sold per store increased from group to group in the table, a larger and larger proportion of the stores in the group were found in the medium or higher rental areas. Similar rental information was not available at the time of the survey for the suburban areas outside of the city of Boston; therefore, it was not possible to similarly classify stores for those suburban areas. However, it is evident from this table that, as the weekly sale of fruits and vegetables increased from group to group, there was a definite though irregular tendency for a larger proportion of all stores in the sales group to appear in the suburban areas. This indicates that the larger stores appear most often in the suburban areas. The pattern in the distribution of stores in relation to rental areas is partially

6/ "Report on Real Property Inventory, Boston 1934," City Planning Board (Boston). Rentals are based on amounts paid by private families for family dwelling units and do not in any sense refer to commercial rents for business properties. Total family rentals paid were divided by the total number of occupied family dwelling units to get a weighted average for each area.

concealed by the combination of the various types of stores, since a detailed examination of each type of store showed somewhat stronger relationships. An indication of this is given in the second part of table 4 where the total distribution of the various types of stores is shown, according to the average monthly rentals of the areas in which the stores are located. The group II independent stores were in general located in the lower rental areas, while the group I independent stores appeared in the medium-high rental areas. Stores of the large and of the local chain systems likewise tended to appear in the medium-high rental areas. Also, a higher proportion of the stores belonging to the large chain systems were located in the suburban areas than was the case with the independent stores. That these relationships should appear within the relatively small sample used seems the more remarkable when it is admitted that, in some instances, a particular store's customers may be drawn primarily from some other rental area than the one in which it is located. This is particularly true with respect to the supermarkets which draw some customers from relatively great distances. These facts indicate that stores selling the most fruits and vegetables, including potatoes, will usually be found in the medium to medium-high rental areas.

Another significant fact shown in table 4 is that in areas where the average monthly rental exceeds \$40 per month, the number of stores present declines rather rapidly as the median monthly rental increases. This is entirely in accord with the generally observed tendency for stores to be located not in the very highest income areas, but rather in the medium or medium to high income areas. Zoning restrictions and lack of sufficient density of population are two possible reasons for the scarcity of stores in the highest rental areas.

The fact that the larger stores in the study appeared in the medium-high rental areas more commonly than did the smaller stores, leads to the conclusion that at least part of the apparent relationship which has been demonstrated between fruit and vegetable sales volume and the amount of potatoes sold may have been a consequence of the relative consumer purchasing power in the several areas con-

cerned. For example, customers in a fairly high rental area might be expected to demand more expensive items and a larger number of items from their stores than customers living in a much lower rental area.

RETAILERS' OBSERVATIONS OF CUSTOMER PREFERENCES

Retailers usually make some effort to stock the kind of items their customers ask for, though other considerations may predominate. A storekeeper cannot be sure he is carrying what his customers desire unless his customers make their wishes known to him and he is successful in determining the wishes of the majority. Therefore, it was highly relevant in this study to try to discover what kind of potatoes retailers thought their customers preferred, and to check these ideas with the facts developed from the consumer survey.

For All-Purpose Potatoes

Retailers were asked what quantity of potatoes their customers usually bought and what preferences were expressed by customers as to area of production, size, color, and other factors. An attempt was made to determine customer preferences when buying potatoes to be used for baking, boiling, or certain other specific uses, as well as their preferences for potatoes for all-purpose use. Satisfactory replies were obtained with respect to potatoes to be used for baking and for potatoes to be used for all purposes. Ninety-two percent of all storekeepers interviewed gave descriptions of the types of potatoes which their customers preferred for all-purpose potatoes. The remainder either declined to consider the question or felt that their customers had no preferences in this respect, or that they were unacquainted with any preferences their customers might have. Of those storekeepers who reported a definite preference on the part of their customers as to the source of potatoes to be used in an all-purpose capacity, 97 percent reported Maine as the favorite locality, and 3 percent specified other areas such as Idaho, New York, or Canada. This strong preference for Maine as the source of all-purpose potatoes as stated by retailers agreed in direction but exceeded in force the preferences revealed by the consumer survey. In that study it was found that

of the 1,776 potato-using families interviewed, only 900 expressed a definite preference as to origin for the potatoes; however, of the families expressing a preference, 821 families, or 91 percent, indicated Maine as the preferred source ^{7/}.

As to the preferred size for potatoes intended to be more or less adaptable to all purposes, some storekeepers indicated a single size only, while others gave a range, such as from 2 1/2 to 3 inches. For the purposes of summarization, an expressed size preference limited to one

stores includes 8 percent of the total number which were stores where the minimum size was said to be 2 inches or less. Between independent and chain stores, about the same proportion of stores were represented in the 2 1/2 inch or smaller group, but in the case of the independent stores, there was a heavier weighting in the 2 1/2 inch group than in the case of the chain stores.

With respect to the upper limit in size specified, the distribution of stores was more evenly divided in the several sizes of 2 1/2, 2 3/4, or 3 inches and

TABLE 5.- CUSTOMERS' PREFERENCES AS TO SIZE OF POTATO TO BE USED
IN AN ALL-PURPOSE CAPACITY, AS STATED BY 340 RETAILERS ^{1/}
IN THE BOSTON METROPOLITAN AREA, MARCH 1940

TYPE OF STORE	PERCENTAGE OF RETAILERS SPECIFYING INDICATED SIZE (DIAMETER) OF POTATO DESIRED BY CUSTOMERS				
	2-1/4 inches or less	2-1/2 inches	2-3/4 inches	3 inches or more	Total all sizes combined
<i>According to minimum size specified:</i>					
Independent	25.5	56.5	15.5	2.5	100.0
Chain	35.8	44.1	17.9	2.2	100.0
All stores	30.8	50.0	16.8	2.4	100.0
<i>According to maximum size specified:</i>					
Independent	1.2	44.8	26.7	27.3	100.0
Chain	0.6	30.7	31.3	37.4	100.0
All stores	0.9	37.3	29.1	32.7	100.0

^{1/} Twenty-eight retailers either could not answer this question, or stated that their customers had no size preferences.

size only rather than to a range was counted twice, once as a maximum and once as a minimum.

In exactly half of the sample stores where consumers' size preferences were expressed by retailers, customers were said to prefer potatoes of a minimum 2-1/2 inch size; an additional 31 percent of the stores were ones in which the minimum size preferred was stated to be 2-1/4 inches or less (see table 5). The 31 percent of the

larger. One reason for the fairly heavy weighting in the 2-1/2 inch maximum group is due to the fact that most of the stores where only one size was specified (which size was summarized both as a maximum and a minimum) fell in this group. In spite of this fact, however, over 60 percent of all storekeepers indicated potatoes at least 2-3/4 inches in diameter as the preferred upper limit in size. These data check fairly well with the consumer survey in which it was shown that most consumers

^{7/} Hincks, M.A., *Marketing Maine Potatoes: I - A Preliminary Report of Consumer Preferences for Potatoes in Boston, March 4 to April 6, 1940.* Maine Agr. Expt. Sta. and Maine Dev. Comm. in cooperation with the Cooperative Research and Service Division, F.C.A., U. S. Dept. Agr. 40 pp. May 1940 (mimeo.) See p. 11.

TABLE 6.- PERCENTAGE OF 337 RETAIL STORES ^{1/} RECOGNIZING PREFERENCES ON THE PART OF CUSTOMERS FOR SPECIFIC SINGLE-PURCHASE QUANTITIES OF POTATOES TO BE USED IN AN ALL-PURPOSE CAPACITY, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	PERCENTAGE OF RETAILERS IN SALES GROUP EXPRESSING PREFERENCE OF CUSTOMERS FOR FOLLOWING QUANTITIES PER PURCHASE				
	15 Pounds	7-1/2 Pounds	3-3/4 Pounds	Other ^{2/}	Total
\$1-\$9	40.3	19.9	-	39.8	100.0
\$10-\$24	43.5	20.6	-	35.9	100.0
\$25-\$49	52.2	32.9	1.3	13.6	100.0
\$50-\$99	64.4	27.1	1.5	7.0	100.0
\$100-\$199	77.5	14.9	0.9	6.7	100.0
\$200-\$499	75.0	17.9	-	7.1	100.0
\$500-\$999	76.8	16.1	-	7.1	100.0
\$1,000 or more	75.6	22.2	2.2	-	100.0
Unknown	66.7	16.7	-	16.6	100.0
All stores	67.0	21.1	0.7	11.2	100.0
TOTALS BY TYPES OF STORES:					
Independent:					
Group I	61.9	22.2	2.0	13.9	100.0
Group II	53.3	13.0	-	33.7	100.0
Large chain	76.9	20.2	0.2	2.7	100.0
Small chain	61.1	30.3	-	8.6	100.0

^{1/} There were 31 stores omitted because the storekeepers could not or did not state customer preferences as to size.

^{2/} Of the "other" quantities specified, 84 percent were 5 pounds or less.

preferred potatoes of 2-1/2 to 3 inches in size ^{8/}.

Indications are, from these data, that the greatest majority of customers would be very well satisfied with potatoes falling within a size range of from 2-1/4 inches to 2-3/4 inches. Whether or not a limitation to such sizes would be of advantage to Maine producers depends upon a great many factors which are beyond the scope of this immediate report. For example, one such important factor would be the question as to what proportion of potatoes actually produced would fall within this size range.

It is a well-known fact that the quantity of potatoes which the customer buys at any one time varies widely among customers. As pointed out in the consumer survey, however, there is a very

definite tendency for purchases to be most frequent in certain size groups. Judging by retailers' estimates as to the majority preference of their customers for a single-purchase quantity of potatoes to be used in an all-purpose capacity, the 15-pound (or peck) quantity is the favorite quantity in about two-thirds of the sample stores (see table 6). The 7-1/2 pound, or half-peck, quantity appears to be the next most favored quantity.

As illustrated in table 6, there is a very evident tendency for the peck quantity to be favored in increasing ratio as the dollar sales volume per store increases, reaching a peak of about three-fourths of the stores, for stores selling \$100-\$199 worth of fruits and vegetables weekly per store, and continuing thereafter at about the same level. The highest proportion of stores in which half-

^{8/} Hincks, M. A., *Marketing Maine Potatoes, I - A Preliminary Report of Consumer's Preference for Potatoes in Boston, March 4 to April 6, 1940.* Maine Agr. Expt. Sta. and Maine Dev. Comm., in cooperation with the Cooperative Research and Service Division, F.C.A., U. S. Dept. Agr. 40 pp. May 1940 (mimeo.) See pp. 26 - 30, inc.

pecks (7-1/2 pounds) were favored appears in the \$25-\$49 group.

The proportion of stores in which odd quantities such as 5 pounds, 7 pounds, 2 pounds, etc., were favored increased as the volume of fresh fruits and vegetables sold per store declined. Recalling the fact that in these stores of smaller dollar sales volume a larger proportion were located in lower rental areas, this demand for small quantities seems entirely logical: This relationship is consistent also with the facts shown in the second part of table 6, where it is indicated that the large chain stores, which in general have the largest fruit and vegetable sales per store and also in general are located in the higher rental areas, show a larger proportion of stores favoring the peck size than is the case with the independent stores or with the stores of the smaller chain systems. Attention is called to the fact that the preferences so far expressed apply only to the total quantity bought in a single purchase and not to the form of package; therefore, there is no necessary implication here that 15-pound consumer packages (already packed before reaching the stores) are more favored in the stores of larger sales groups.

For Baking Potatoes

Customer preferences for baking potatoes, as recognized by retailers is shown in table 7, with respect to the State from which customers desire the potatoes to come. Only a little over one-third of all

retailers included in the study stated customers' preferences in this respect. Of those stating preferences, not quite 60 percent reported their customers as favoring Maine as the source for baking potatoes, while a little over one-fourth stated that the customers preferred Idaho, and the remainder indicated Nebraska or other States. It will be noted that the proportion of stores which reported on this matter of preferred origin of baking potatoes was larger for the groups of stores having a large sales volume than it was for the lower volume groups. The relative preference for Maine potatoes was least, and for Idaho potatoes was greatest, among stores of the largest sales volume. When it is recalled that, in general, stores selling the larger volumes of fresh fruits and vegetables are found in the medium-high rental areas of the Boston metropolitan area, the relationship shown becomes even more significant. The indications are that larger fruit and vegetable stores in the better income or rental areas are more likely to have customers who express definite preferences with respect to baking potatoes and that these preferences tend to move toward Idaho as the preferred source. At the same time, it appears that Maine, because of nearness to market and other advantages, has been competing fairly successfully with other areas in selling potatoes to be used for baking. Approximately two-thirds of these sample stores sold less than \$200 worth of fresh fruits and vegetables per store per week, and in over 70 percent of such

TABLE 7.- RELATIONSHIP BETWEEN STATE OF ORIGIN PREFERRED BY CUSTOMERS FOR BAKING POTATOES AND WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE, AS STATED BY 141 ^{1/} CHAIN AND INDEPENDENT RETAILERS IN THE BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	RETAILERS STATING CUSTOMER PREFERENCE		PERCENTAGE OF REPORTING RETAILERS, BY STATE PREFERRED			
	NUMBER	PERCENTAGE OF ALL IN SALES GROUP	MAINE	IDAHO	OTHER	ALL STATES
\$1 - \$99	33	20.2	78.8	15.2	6.0	100.0
\$100 - \$199	36	45.0	73.6	15.3	11.1	100.0
\$200 or more	69	56.6	42.0	36.2	21.8	100.0
All stores	141 ^{2/}	38.3	57.8	26.6	15.6	100.0

^{1/} No preferences as to State of origin for baking potatoes were expressed in 227 retail stores.

^{2/} Included are 3 stores for which the dollar sales were not reported.

TABLE 8.- CUSTOMERS' PREFERENCES AS TO SIZE OF POTATO TO BE USED FOR BAKING,
AS STATED BY 174 RETAILERS ^{1/} IN THE BOSTON METROPOLITAN AREA, MARCH 1940

TYPE OF STORE	PERCENTAGE OF RETAILERS SPECIFYING SIZE (DIAMETER) DESIRED BY CUSTOMERS				
	2-1/4 INCHES OR LESS	2-1/2 INCHES	2-3/4 INCHES	3 INCHES OR MORE	ALL SIZES COMBINED
<i>Minimum size:</i>					
Independent	3.3	36.7	28.3	31.7	100.0
Chain	2.6	38.6	41.2	17.6	100.0
All stores	2.9	37.9	36.8	22.4	100.0
<i>Maximum size:</i>					
Independent	16.7	23.3	51.7	8.3	100.0
Chain	15.8	30.7	38.6	14.9	100.0
All stores	16.1	28.2	43.1	12.6	100.0

^{1/} 194 retailers did not state customer preference in this respect.

stores Maine was given preference as the source of baking potatoes. Inasmuch as the sample stores are probably somewhat larger than stores in general in the Boston metropolitan area, it follows that Maine still has a substantial hold on this market. There was no difference between the independent and the chain stores included in the survey as to the State of origin desired for baking potatoes. Among the independent stores, Maine was preferred in 58.5 percent of the stores and Idaho in 26.6 percent; among the chain stores Maine was favored in 57.4 percent, and Idaho in 26.6 percent.

As to preferred sizes for baking potatoes, about 38 percent of the stores in which customer preferences were expressed indicated a 2-1/2 inch diameter as the minimum size acceptable, and over 40 percent of the stores indicated 2-3/4 inches as an acceptable maximum size (see table 8). There was some indication that in the independent stores most customers preferred 2-1/2 inches as the minimum while in chain stores 2-3/4 inches was the more common size though 2-1/2 inches was nearly as common. In both the independent and chain stores, 2-3/4 inches was the favorite maximum size for baking potatoes, but the preference was more pronounced in the independent stores. The data also indicate that there is not a great deal of difference between potatoes acceptable for baking and those for all-purpose uses. In

general, particularly with respect to the minimum size, there is a tendency for size preference for baking potatoes to run about 1/4 inch larger than for all-purpose potatoes. These relationships may also mean that Boston customers, accustomed as they are to using Maine potatoes for most purposes, have found Maine potatoes in a medium size to be acceptable for most purposes. It appears that a 2-1/2 to 2-3/4 inch size would satisfy the great majority of customers.

As to preferred single-purchase quantity for baking potatoes, there is a remarkable similarity shown between the various types of stores included in the sample (see table 9). In 43 percent of the reporting stores, both independent and chain, the 15-pound quantity was considered to be the preferred quantity for single purchases of baking potatoes. In 56 percent of the stores the preferred quantity was stated to be 7-1/2 pounds, 3-3/4 pounds, or some other quantity (usually less than 5 pounds). Although 15 pounds was the most important single quantity mentioned, the total of the percentages for quantities less than 15 pounds was greater. The emphasis upon purchases of less-than-peck quantities of potatoes to be used for baking seems entirely logical and in accord with the widely recognized practice of buying a smaller quantity for such purposes than when buying potatoes for more general use.

There were perhaps too few stores included to permit an accurate determination of any possible relationship between the volume of fresh fruit and vegetables sold and the single-purchase quantity preferred for baking potatoes. However, within the limits of the data assembled, no consistent relationship was observed 9/.

CHOICES OFFERED POTATO CUSTOMERS

In connection with the consideration of expressed preferences on the part of the consumers for potatoes of certain characteristics, both as related by consumers themselves and as interpreted to the best of their ability by retailers, it

rapidly from group to group with an increasing volume of fresh fruits and vegetables sold per store; this increasing volume, as we have seen previously, is associated in part also with an increasing tendency for the store to be located in the medium-high rental areas. Realizing that these sample stores are probably somewhat larger than those of the metropolitan area on the average, this also means that probably not over one-fourth of all stores selling potatoes were carrying potatoes from any other source than Maine at the time of the survey in March. Maine potatoes were carried in all but 2 of the stores included in March.

TABLE 9.- PERCENTAGE OF STORES RECOGNIZING PREFERENCES ON THE PART OF CUSTOMERS FOR SPECIFIC SINGLE-PURCHASE QUANTITIES OF BAKING POTATOES, 162 RETAIL STORES 1/, BOSTON METROPOLITAN AREA, MARCH 1940

TYPE OF STORE	NUMBER OF STORES REPORTING	PERCENTAGE OF RETAILERS EXPRESSING PREFERENCE OF CUSTOMERS FOR SPECIFIED QUANTITIES PER PURCHASE				
		15 pounds	7-1/2 pounds	3-3/4 pounds	Other <u>2/</u>	Total
Independent	56	43	28	3	26	100
Chain	106	43	26	1	30	100
All stores	162	43	28	1	28	100

1/ 206 retailers (56 of the sample) did not state consumer preferences in this respect.

2/ Primarily small quantities such as 5 pounds or less.

is highly relevant to consider the choices which customers had in stores. It is very probable that the actual preferences of different types of consumers may be influenced by the choice, or lack of choice, which was available.

State of Origin

It will be recalled that most customers apparently preferred potatoes from the State of Maine. As indicated in table 10, 72 percent of all stores offered their customers potatoes from only one State in March, and this one State, of course, was almost always Maine. There will be noted in this table also, a strong tendency for the proportion of stores carrying potatoes from more than one State to increase

The latter half of table 10 shows that stores belonging to the small chain systems led all other types of stores in the proportion carrying potatoes from more than one State, with the group I independent stores very close behind. The probable effect of volume of fruit and vegetable sales and of location are factors here also. However, the stores of the large chain systems did not in general carry as much variety in this respect as might be anticipated from their volume of sales. This is probably due to the desire of chain stores to standardize as far as possible, or a reverse tendency on the part of independent stores to carry as wide a variety as practicable as one means of meeting competition. It may be that the

9/ For example, of all stores reporting a preference in this respect, 44 percent of the stores selling less than \$100 worth of fresh fruits and vegetables per week mentioned the peck as the favorite quantity; of the stores selling from \$100 to \$199 worth of fresh fruits and vegetables per week per store, 47 percent gave the peck as the favorite quantity; and of the stores selling more than \$200 worth of fresh fruits and vegetables per week, the peck quantity was given as preferred in 41 percent of the stores.

TABLE 10.- RELATIONSHIP BETWEEN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE AND THE PROPORTION OF STORES OFFERING POTATOES FROM MORE THAN ONE STATE ^{1/}, 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	TOTAL STORES IN SALES GROUP	PERCENTAGE OF STORES IN GROUP CARRYING POTATOES FROM MORE THAN ONE STATE
	<i>Number</i>	<i>Percent</i>
\$1-\$9	22	0
\$10-\$24	25	0
\$25-\$49	41	5
\$50-\$99	75	11
\$100-\$199	80	22
\$200-\$499	75	56
\$500-\$999	30	57
\$1,000 or more	17	76
Unknown	3	67
All stores	368	28
TOTALS BY TYPE OF STORE: ^{2/}		
Independent:		
Group I	123	32
Group II	48	6
Large chain	154	29
Small chain	43	35

^{1/} State, as used here, also covers other areas such as Prince Edward Island in Canada.

^{2/} Average weekly sales of fresh fruits and vegetables per store were as follows: Group I, \$200; group II, \$48; large chains, \$265; and small chains, \$537.

large chain concerns have found it does not pay them to carry perishable items for which there is only an infrequent and irregular demand.

Marked Grades

With respect to choices offered customers, it is relevant to note also whether or not customers who might have been conscious of quality distinctions between potatoes, on the basis of grades, had the opportunity to choose between potatoes that were marked as to grade and those not so marked. The percentages shown in table 11 indicate that slightly over half, or 56 percent, of the stores in the sample offered their customers potatoes both graded and ungraded. The terms graded and ungraded as used here refer to whether or not the original shipping-point grade designation was made apparent to customers upon the lots offered for sale. Potatoes classified as ungraded here may have been, and in many cases were, of a

quality equal to those marked with grades in the same store, but the lots were ungraded and purchased as such by the customers.

A little over one-third or 38 percent of the sample stores sold potatoes only in such form as made the grade designations a question mark as far as the customers were concerned. The proportion of stores which offered their customers only lots unmarked as to quality or grade declined as the volume of fruits and vegetables sold per store increased, from group to group, again accompanied by the factor of location of the stores with respect to rental areas. As indicated in the second part of this table, a very high proportion of the group II independent stores carried only ungraded potatoes, while the stores belonging to the large chain systems almost invariably offered their customers a choice of either unmarked potatoes in bulk or potatoes marked as to quality. Other data which will be presented later will

indicate that in the great majority of cases where graded potatoes were offered customers, the official grade was U. S. No. 1. A large proportion of the ungraded lots were potatoes from bags marked U. S. No. 1, but were no longer accompanied by any visible written indication of grade by the time they were offered for sale in the stores. This was determined by actual examination of the original bags from which the bulk bins or store packages were filled.

Packages or Bulk

In regard to packaging of potatoes, stores exhibited a wide variety of practices. In some stores potatoes were offered in bulk only, from which individual customer orders were made up at the time the customer visited the store. In other stores in addition to the bulk lot displayed, a certain quantity of potatoes would be put up in advance in standard size brown paper bags to facilitate waiting on customers, on the assumption that a large proportion of the customers would

want a certain standard quantity previously packed in the store. In this study, such store-packed lots have been designated as "store-packages." A few stores offered potatoes only in branded consumer-sized packages, packed before such packages reached the store. Most stores offered potatoes in a combination of ways which included bulk potatoes, store packages, and branded consumer packages. A little over one-third of all the stores in the sample offered potatoes in all three ways (see table 12).

Branded consumer packages were available in 62 percent of the stores, store-packages in 39 percent, and bulk potatoes in 97 percent of the stores. The proportion of stores offering potatoes only in bulk declined rather rapidly as the volume of fresh fruits and vegetables sold per store increased from group to group. There are rather striking differences between the several types of stores, as shown in the latter half of table 12. The group II independent stores for the most part are

TABLE 11.- RELATIONSHIP BETWEEN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES
PER STORE AND CHOICES OFFERED CUSTOMERS AS TO GRADE OF POTATOES,
367 RETAIL STORES ^{1/}, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	STORES IN GROUP	PERCENTAGE OF STORES IN GROUP OFFERING POTATOES			
		UNGRADED ONLY	GRADED ONLY	BOTH GRADED AND UNGRADED	TOTAL
	<i>Number</i>	<i>P e r c e n t</i>			
\$1-\$9	22	91	9	0	100
\$10-\$24	25	92	4	4	100
\$25-\$49	41	71	5	24	100
\$50-\$99	74	36	7	57	100
\$100-\$199	80	24	6	70	100
\$200-\$499	75	21	5	74	100
\$500-\$999	30	10	0	90	100
\$1,000 or more	17	12	6	82	100
Unknown	3	33	-	67	100
All stores	367	38	6	56	100
TOTALS BY TYPE OF STORE:					
Independent:					
Group I	123	59	3	38	100
Group II	48	92	6	2	100
Large chain	153	2	5	92	100
Small chain	43	49	9	42	100

^{1/} One record was incomplete in this respect.

TABLE 12.- CHOICES OFFERED POTATO CUSTOMERS AS TO BULK, STORE PACKAGE OR BRANDED CONSUMER PACKAGE RELATED TO SIZE AND TYPE OF STORE, IN 367 1/ RETAIL STORES: BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	STORES IN SALES GROUP	PERCENTAGE OF STORES IN GROUP OFFERING POTATOES AS FOLLOWS -					
		BULK ONLY	BULK AND STORE PACKAGES 2/	BULK STORE AND BRANDED PACKAGES 3/	BULK AND BRANDED PACKAGES	BRANDED PACKAGES ONLY	TOTAL
	<i>Number</i>	<i>P e r c e n t</i>					
\$1-\$9	22	86	5	0	0	9	100
\$10-\$24	25	84	8	4	0	4	100
\$25-\$49	41	56	15	22	5	2	100
\$50-\$99	74	18	20	38	20	4	100
\$100-\$199	80	14	9	37	38	2	100
\$200-\$499	75	7	15	38	37	3	100
\$500-\$999	30	0	10	63	27	0	100
\$1,000 or more	17	6	6	76	12	0	100
Unknown	3	0	33	34	33	0	100
All stores	367	25	13	36	23	3	100
TOTALS BY TYPE OF STORE:							
Independent:							
Group I	123	35	23	21	17	4	100
Group II	48	77	15	2	0	6	100
Large chain	153	1	2	58	37	2	100
Small chain	43	26	21	32	21	0	100

1/ One record incomplete in this respect.

2/ Includes 8 stores reported to have sold only in store packages.

3/ Includes 12 stores reported to have both store and branded consumer packages, but no bulk lots, displayed for sale.

small, in the poorer rental areas, and had the highest proportion of stores which sold potatoes in bulk only. The stores belonging to the large chain systems had the highest proportion of stores which offered potatoes in all three ways: bulk, store-packages, and branded packages. Stores in the large chain systems made use of store-packages in 60 percent of the stores, while group I independent stores made use of such packages in 44 percent of their stores. Ninety-five percent of the interviewed stores belonging to the large chain systems offered potatoes both in bulk and in branded packages.

These data would make it appear that the large chain store systems have been the principal supporters of the idea of a consumer package, stamped with brand and

grade. On the other hand, it should be noted that the branded consumer packages being used by the three large chain systems in Boston were primarily limited to three brands put up in each case specifically for the particular chain system using it.

As both customers and storekeepers have observed on a number of occasions, there are some customers who would much prefer to pick out their own potatoes from a lot of bulk potatoes than to take "sight unseen" potatoes put up by the storekeeper on order, a previously packed store package, or even the branded consumer-package packed in advance. It is relevant, therefore, to see whether or not customers have the opportunity of selecting their potatoes from among the potatoes displayed

in the stores selling bulk potatoes (table 13). Only 1 of the independent stores selling bulk potatoes was operated on a self-service plan exclusively, and only 3 operated on a combination self-service and clerk-service plan. Among the chain stores selling bulk potatoes, 13 were exclusively self-service, and 18 were combination self- and clerk-service. All the rest of the stores sampled were operated on a clerk-service plan. It would appear, therefore, that except in the chain stores customers had relatively little opportunity to do their own selecting from bulk potatoes offered. However, it is a known fact that even in clerk-service independent stores, certain customers are often

only surmise that even in a considerable portion of the independent and chain clerk-service stores, the customers have the opportunity, if they so desire, to select the individual potatoes that go into their orders.

DESCRIPTION OF POTATOES SOLD

What kind of potatoes actually were sold in the greatest volume in these stores? As to the producing area or the State of origin, the case is very clear cut. In all the independent stores except 1, Maine potatoes sold in greater volume than potatoes from any other source during March. In chain stores, all stores except

TABLE 13.- NUMBER OF STORES SELLING BULK POTATOES WHICH OPERATED ON A CLERK-SERVICE, SELF-SERVICE, OR A COMBINATION PLAN, FOR 354 1/ RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	NUMBER OF STORES ACCORDING TO PLAN OF OPERATION					
	INDEPENDENT STORES			CHAIN STORES		
	Self-service	Clerk-service	Combination	Self-service	Clerk-service	Combination
\$1-\$9	-	20	-	-	-	-
\$10-\$24	-	19	-	-	4	-
\$25-\$49	1	24	-	-	15	-
\$50-\$99	-	25	-	1	46	-
\$100-\$199	-	30	1	1	44	2
\$200-\$499	-	25	2	6	36	2
\$500-\$999	-	8	-	-	13	9
\$1,000 or more	-	5	-	5	3	4
Unknown	-	2	-	-	-	1
All stores	1	158	3	13	161	18

1/ 14 records were incomplete in this respect.

permitted to designate the specific potatoes they wish to go into their order, and in not a few instances, customers are even able at times to do the selecting personally when the fruits and vegetables display is located so that this is possible. In 298 of the 368 sample stores, potatoes were included in the fresh fruits and vegetables display in the store, and of these, 279, or 94 percent, had the display including potatoes so located that it was possible for the customer to shop from the display. In the June survey of stores which is to be summarized in a later report, storekeepers were asked specifically whether or not customers were permitted to select individual potatoes. From March data, the month just summarized, we can

2 sold potatoes from Maine in greater volume than potatoes from any other source.

There was considerable difference between chain and independent stores in the relative proportion of stores selling potatoes in packages and in bulk. For example, 67 percent of the independent stores sold potatoes primarily in bulk, while only 30 percent of the chain stores sold potatoes mostly in bulk (table 14). Only 15 percent of all the independent stores in the sample sold potatoes in branded consumer packages more often than in other ways, while 42 percent of the chain stores sold potatoes primarily in this form. Combining both bulk and packaged potatoes, the 15-pound quantity was

TABLE 14.- PERCENTAGE DISTRIBUTION OF STORES ACCORDING TO THE MOST COMMON SALE QUANTITY AND PACKAGE FOR POTATOES IN EACH STORE, SHOWN IN RELATION TO THE AMOUNT OF SALES OF FRESH FRUITS AND VEGETABLES, 363 ^{1/}RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	NUMBER OF STORES INCLUDED IN GROUP	PERCENTAGE OF STORES IN SALES GROUP SELLING POTATOES MOSTLY IN -						
		BULK			STORE PACKAGES			BRANDED CONSUMER PACKAGE ^{2/}
		15 pounds	7-1/2 pounds	Less than 7-1/2 pounds	15 pounds	7-1/2 pounds	Less than 7-1/2 pounds	
<i>All independent stores:</i>								
\$1-\$99	97	44	10	21	5	5	5	10
\$100-\$199	32	28	13	9	19	6	6	19
\$200 or more	40	43	10	5	12	5	0	25
All groups ^{3/}	171	41	11	15	9	5	4	15
<i>All chain stores:</i>								
\$1-\$99	64	34	5	2	14	12	0	33
\$100-\$199	47	28	6	0	15	2	2	47
\$200 or more	80	16	0	2	28	5	1	48
All groups ^{4/}	192	25	3	2	20	7	1	42

^{1/} Five records were incomplete in this respect.

^{2/} All 15 pounds, except for one local chain store which sold mostly in 10-pound consumer packages.

^{3/} Includes 2 stores for which dollar sales were not reported.

^{4/} Includes 1 store for which dollar sales were not reported.

by far the most popular. In the case of the independent stores in the sample, 65 percent of the stores sold potatoes mostly 15 pounds at a time, and 87 percent of the chain stores sold potatoes mostly in this quantity.

While the trends were irregular, particularly for the independent stores, there was, nevertheless, some indication of a relationship between the total volume of fruits and vegetables sold per store per week (with its accompanying association with rental areas), and the proportion of stores selling potatoes in the most common ways. For example, as shown in table 14, the proportion of stores selling mostly in bulk declined as the volume of fresh fruit and vegetable sales increased, while the proportion of stores selling mostly in store packages and in branded consumer packages increased.

The branded consumer packages were marked U. S. No. 1 as to quality or grade in all cases except 5. Of these, 4 carried a brand but no grade designation, and one carried the designation of U. S. No. 1,

size A. With rare exceptions, store packages carried no designation as to grade or quality, but were made up in the store from larger packages which, in most cases, had originally been marked U. S. No. 1. The percentages shown in table 14 may be compared in some respects with the percentages as shown in table 12 for the purpose of evaluating the true significance of the most common form of sale. For example, table 12 shows 62 percent of all stores offering potatoes in branded consumer packages, but table 14 shows only 30 percent of the stores selling potatoes mostly in such packages.

RESULTS OF QUALITY INSPECTION

One of the most important parts of this store survey was the quality inspection of potatoes found in the several stores according to the standards adopted for official U. S. grades. The enumerators who did the work were all qualified and experienced Federal-State grade inspectors. Samples of each lot or kind of potatoes in the store were inspected, but no attempt was made to pass upon the total or average quality of all potatoes in the

TABLE 15.- SUMMARY OF INSPECTION OF 15-POUND BRANDED CONSUMER PACKAGES
OF MAINE POTATOES, GREEN MOUNTAIN VARIETY, MARKED U. S. NO. 1,
AS FOUND IN 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
Underweight	2	25	4	0	4
Overweight	24	25	19	14	19
U. S. No. 1	59	25	60	72	60
U. S. No. 1 except for soft rot	0	0	1	0	1/
88 - 93 percent U. S. No. 1	33	50	24	21	27
82 - 87 percent U. S. No. 1	8	25	10	7	10
75 - 81 percent U. S. No. 1	0	0	3	0	2
Under 75 percent U. S. No. 1	0	0	2	0	1
Over 5 percent under 1-7/8 inches	0	0	2	0	2
Over 1 percent soft rot	0	0	2	7	2
Free from serious damage	54	50	63	43	59
Over 6 percent serious damage	2	0	2	0	2
	Number				
Stores in group	123	48	154	43	368
Samples taken 2/	54	4	160	14	232

1/ Less than 1 percent.

2/ Approximately 2 samples for each store handling such packages.

store. The enumerators were instructed to make a complete quality inspection of one 100-pound bag (previously unopened) from each different lot of potatoes found in such bags in the store, and two samples from each different lot of potatoes offered in store packages or branded consumer packages found in the store. Lots were distinguished according to the following factors:

1. State or area where potatoes were produced;
2. Variety of potatoes;
3. Brand; and
4. Grade marked on the package (including any specific limitation as to size), with a distinction being made between packages put

up by the storekeeper before the customer called, and packages put up at the shipping point or by dealers in the market before the package reached the store.

Enumerators also were instructed to inspect a 25-pound sample from each lot of potatoes offered in bulk in a bin in the store.

The inspections in general showed that the actual quality of the potatoes in the stores met the grade designation on the package relatively most often in the case of the 15-pound branded consumer packages 10/. Next best were the 100-pound burlap bags. The usual quality of store packages and of bin samples was still lower. Discussion of the inspection

10/ No distinction has been made between branded consumer packages packed at shipping point and similar packages packed by dealers in the wholesale market. From the standpoint of the consumer this is an irrelevant distinction, provided the quality of the potatoes in the package measures up to what the consumer may have been led to expect from the printed material on the outside of the package. Since this is an important distinction from the standpoint of Maine growers and shippers, however, an attempt will be made to make such a distinction by further analysis so that the findings may be included in a subsequent report.

data will follow this order. In figure 1 are compared graphically the various types of packages of Maine Green Mountain potatoes found in all stores combined. Only the samples marked U.S. No. 1 on the package, or known to have been filled from such packages, are used, except for the store-packed paper bags. Branded consumer packages are shown in this illustration to have the lowest percentage of samples containing total defects in excess of 6 percent, using official standards for grade U.S. No. 1.

Branded Consumer Packages

The more significant details of the inspection of 15-pound branded consumer packages of Maine Green Mountain potatoes are shown in table 15.

The actual net weight of the potatoes in the 232 branded packages examined was

quite uniform and indicated that customers were likely to get full weight. While 4 percent of the samples ran underweight by small fractions of a pound, 19 percent of the samples ran overweight and the average net weight of all samples did not vary from 15 pounds by as much as one-quarter of a pound.

Only 2 percent of the samples contained more than 5 percent (by weight) of the potatoes which were less than 1-7/8 inches in diameter. Therefore, these samples lived up to their grade designation of U.S. No. 1 quite satisfactorily as far as minimum size is concerned.

Damage from soft rot or wet breakdown, for which there is a 1 percent maximum tolerance allowed for U.S. No. 1 grade, likewise was rarely troublesome in these samples, since only 2 percent of the samples exceeded this tolerance.

TABLE 16.- SUMMARY OF INSPECTION OF 15-POUND BRANDED CONSUMER PACKAGES OF MAINE POTATOES, ROUND WHITE VARIETIES 1/, MARKED U. S. NO. 1, AS FOUND IN 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

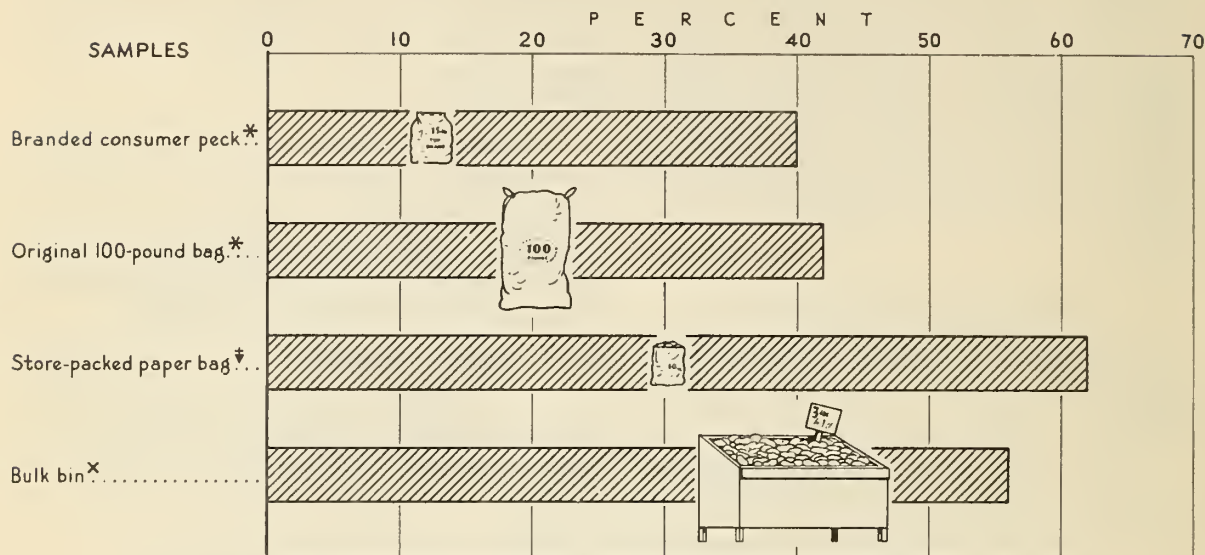
ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
Underweight	15	0	3	4	5
Overweight	12	0	3	26	7
U. S. No. 1	69	50	61	48	61
U. S. No. 1 except for soft rot	0	0	1	0	<u>2/</u>
88 - 93 percent U. S. No. 1	27	50	29	39	30
82 - 87 percent U. S. No. 1	4	0	4	9	5
75 - 81 percent U. S. No. 1	0	0	4	0	3
Under 75 percent U. S. No. 1	0	0	1	4	1
Over 5 percent under 1-7/8 inches	0	0	0	0	0
Over 1 percent soft rot	0	0	1	0	1
Free from serious damage	65	50	66	61	65
Over 6 percent serious damage	0	0	1	4	2
<i>Number</i>					
Stores in group	123	48	154	43	368
Samples taken <u>3/</u>	26	2	137	23	188

1/ The "Round White" classification includes only such potatoes of this general type as the enumerators were unable to identify positively as Green Mountain, Katahdin, or some other single variety. It includes all mixed varieties.

2/ Less than 1 percent.

3/ Approximately two samples for each store handling such packages.

FIGURE I
PERCENTAGE OF SAMPLES OF MAINE GREEN MOUNTAIN POTATOES
WHICH CONTAINED MORE THAN 6 PERCENT TOTAL DEFECTS



Branded consumer peck samples showed the lowest proportion of samples with total defects in excess of the tolerance for U.S. No. 1 grade

* All samples were marked U.S. No. 1 on packages inspected

† Grade markings of original package from which store packages were filled were unknown

× Includes only samples from bins known to have been filled from bags marked U.S. No. 1

Sixty percent of the packages conformed to the requirements of U.S. No. 1 grade, which leaves 40 percent in which the defects were such as to disqualify them for that grade ^{11/}. However, 27 percent of the samples contained potatoes that were from 88 to 93 percent U.S. No. 1 quality, thus making a total of 87 percent which were 88 percent or more U.S. No. 1 quality. About 40 percent of the samples also showed some serious damage, but only 2 percent of the samples showed serious damage in excess of the 6 percent tolerance allowed for U.S. No. 2 grade.

Thus it appears that for these 368 sample stores, which as we have seen are probably larger and better located than stores in general in the Boston metropolitan area, the package of potatoes which

more than any other is intended to carry top-notch quality along with identifying brand and grade through to the final consumers, lived up to its written description in only about 60 percent of all cases examined ^{12/}. It is recognized, of course, that these March inspections of quality cover only one period during the whole shipping season. Opinions differ, but it is possible that Maine potatoes are in as good shipping condition in March as in any other month.

As between the several types of stores included in the survey, the stores belonging to the small or local chain systems had the highest proportion of samples taken that met the U.S. No. 1 grade requirements, and stores of the large chain systems had the highest proportion of

^{11/} In a subsequent report will be included an analysis of potato samples to show the reasons for the failure of the samples to grade U. S. No. 1.

^{12/} Very similar results of inspections were obtained in studies made in Chicago. See Spangler, R. L., "Retail Trade Practices and Preferences for Late Crop Potatoes in Chicago and Suburbs, and Quality Analysis of Potatoes Offered for Sale to Consumer, 1939-1940," Dec. 1940 - (mimeographed) Agricultural Marketing Service, and: "Retail Trade Practices and Preferences for Early Crop Potatoes in Chicago and Quality Analysis of Potatoes Offered for Sale to Consumers, 1940," Dec. 1940 (mimeographed) Agricultural Marketing Service.

TABLE 17.- SUMMARY OF INSPECTION OF 100-POUND BAGS OF MAINE, GREEN MOUNTAIN POTATOES, MARKED U. S. NO. 1, AS FOUND IN 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
Underweight	30	25	47	17	36
Overweight	2	0	3	0	2
U. S. No. 1	62	56	54	75	59
U. S. No. 1 except for soft rot	0	0	0	0	0
88 - 93 percent U. S. No. 1	19	25	29	8	23
82 - 87 percent U. S. No. 1	15	13	9	17	12
75 - 81 percent U. S. No. 1	4	0	5	0	4
Under 75 percent U. S. No. 1	0	6	3	0	2
Over 5 percent under 1-7/8 inches	0	0	0	0	0
Over 1 percent soft rot	0	6	0	0	1
Free from serious damage	30	19	25	25	26
Over 6 percent serious damage	9	19	12	8	11
<i>Number</i>					
Stores in group	123	48	154	43	368
Samples taken	47	16	59	12	134

samples free from serious damage 13/. However, the quality in general of the branded consumer packages in the group I independent stores was not greatly different from that of similar packages in the chain stores.

A detailed examination of the inspection data sorted by volume of fresh fruits and vegetables sold per store showed no consistent relationship between volume of fruits and vegetables sold and quality of the potatoes found in the stores.

A similar summary of inspection data for branded consumer packages of Maine potatoes of unidentified round white varieties is presented in table 16. Here it is shown that the quality of these samples was very similar to the quality of the Green Mountain variety in the consumer packages examined. A somewhat larger proportion of the round white type samples

were free from serious damage. The group I independent stores had even better quality potatoes of this type and package than did the stores in the large chains.

Hundred-pound Bags

From the standpoint of total volume of potatoes moved through the Boston markets, potatoes packed in 100-pound bags are, of course, of greater importance than the total of the branded consumer packages. The summarized results of inspection of such packages for Maine Green Mountain potatoes is shown in table 17. Over one-third of the bags examined were underweight by amounts equal to one-quarter pound or more. Only 2 percent of the samples were overweight by as much as one-quarter pound or more. All together, the samples averaged one-half pound short of the 100 pounds net weight supposed to be in the bags.

13/ Total defects as used throughout this discussion refer to defects which would tend to disqualify a sample for U. S. No. 1 grade. Serious damage as used here refers to injuries and defects of such kind and extent as to tend to disqualify a sample for U. S. No. 2 grade. The interpretation of these inspections has been made strictly according to requirements of official U. S. standards as stated in "Service and Regulatory Announcements Number 151," of the United States Department of Agriculture.

Undersized potatoes were never the cause of potatoes failing to meet the requirements of U.S. No. 1 grade for the 100-pound Green Mountain samples. Slightly over 40 percent of the samples failed to meet the requirements of U.S. No. 1 grade because of the total defects exceeding 6 percent of the weight of such samples. However, this includes 23 percent containing potatoes that were from 88 to 93 percent U.S. No. 1 quality, thus making a total of 82 percent of the samples which were actually 88 percent or more U.S. No. 1 quality. Only about one-fourth of the samples (26 percent) were free from serious damage and 11 percent exceeded the 6 percent serious damage tolerated for U.S. No. 2.

Table 18 shows similar results of inspection of 100-pound bags of Maine round white miscellaneous varieties. As in the case of the branded consumer packages, only the lots of this type which enumerators could not identify as to specific variety were classed merely as "round

white." Mixed varieties were classified as round white also, if of this general type. In the case of these potatoes, average weight was one-half pound short. Undersize was again a relatively insignificant difficulty. Samples meeting the requirements of U.S. No. 1 grade were 54 percent of the samples taken. An additional 23 percent contained potatoes that were from 88 to 93 percent U.S. No. 1 quality, thus making a total of 77 percent which were actually 88 percent or more U.S. No. 1 quality. Again only about one-fourth of the samples were free from serious damage and one out of ten exceeded the serious damage tolerance for U.S. No. 2 grade. From the standpoint of the proportion of samples meeting U.S. No. 1 specifications, the group I independent stores had the best potatoes of the miscellaneous round white varieties in the 100-pound bags. From the standpoint of the proportion of 100-pound samples free from serious damage, the group I independent stores had the best potatoes of the Green Mountain variety.

TABLE 18.- SUMMARY OF INSPECTION OF 100-POUND BAGS OF MAINE ROUND WHITE VARIETIES 1/, MARKED U. S. NO. 1, AS FOUND IN 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
Underweight	37	50	47	42	43
Overweight	7	0	7	0	6
U. S. No. 1	59	50	51	50	54
U. S. No. 1 except for soft rot	0	0	0	0	0
88 - 93 percent U. S. No. 1	19	50	23	25	23
82 - 87 percent U. S. No. 1	11	0	16	25	15
75 - 81 percent U. S. No. 1	7	0	7	0	6
Under 75 percent U. S. No. 1	4	0	3	0	2
Over 5 percent under 1-7/8 inches	0	0	0	8	1
Over 1 percent soft rot	0	0	0	0	0
Free from serious damage	19	0	28	25	24
Over 6 percent serious damage	11	0	12	8	11
	Number				
Stores in group	123	48	154	43	368
Samples taken	27	2	43	12	84

1/ The "Round White" classification includes only such potatoes of this general type as the enumerators were unable to identify positively as Green Mountain, Katahdin, or some other single variety. It includes all mixed varieties.

Store Packages

About 1 out of 10 of the storekeepers visited in the Boston metropolitan area found it to their advantage to dump out some of their 100-pound bags of potatoes and to repack them, usually in 15-pound quantities, in brown paper bags which we have designated as store packages. With the majority of customers asking for this quantity and with these quantities made up in advance of the time the customer comes into the store, considerable time is saved in waiting on customers. Store packages of Maine potatoes were inspected in these stores to the extent of 78 samples of

about half of these samples were free from serious damage, and 11 percent of the Green Mountain and 17 percent of the miscellaneous round white varieties sampled had serious damage in excess of the tolerance for No. 2 grade. Perhaps these facts help to explain why consumers have not adopted branded consumer packages more rapidly than they have. If a customer fails to find satisfactory quality in any closed package, he is likely to be more skeptical of the quality of any other closed package, even though the quality may be claimed on the outside as is the case with branded consumer packages.

TABLE 19.- SUMMARY OF INSPECTION OF STORE PACKAGES OF MAINE GREEN MOUNTAIN POTATOES AS FOUND IN 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
U. S. No. 1	40	100	20	50	35
U. S. No. 1 except for soft rot	0	0	0	0	0
88 - 93 percent U. S. No. 1	32	0	51	31	40
82 - 87 percent U. S. No. 1	8	0	17	13	13
75 - 81 percent U. S. No. 1	16	0	9	6	10
Under 75 percent U. S. No. 1	4	0	0	0	1
Over 5 percent under 1-7/8 inches	0	0	0	0	0
Over 1 percent soft rot	4	0	6	0	4
Free from serious damage	64	50	37	56	50
Over 6 percent serious damage	12	0	14	12	13
	<i>Number</i>				
Stores in group	123	48	154	43	368
Samples taken	25	2	35	16	78 1/

1/ Included in the 78 samples are 53 peck packages, 19 half-pecks, and 6 smaller packages.

Green Mountain variety and 54 samples of round white unidentified varieties (see tables 19 and 20). The inspections indicate that customers in general did not get as good quality in these store packages as existed in the original 100-pound bag, since only 35 percent of the store package samples of Green Mountain variety and 31 percent of those of the round white types met the requirements for U.S. No. 1. Forty and 43 percent, respectively, contained potatoes that were 88 to 93 percent U.S. No. 1 quality; these combined with those of U.S. No. 1 quality, make a total of 75 and 74 percent, respectively, that were 88 percent or more U.S. No. 1 quality. Only

Twenty-five Pound Bin Samples

In order to meet the needs of customers who insist on selecting individual potatoes, and to have on hand a stock of potatoes from which odd quantities can be put up, nearly all stores visited carried bulk potatoes (table 12). In order to compare quality inspection data for bulk bin samples with the grade indications which were marked upon the bags from which the bulk bins were originally filled, the samples have been divided into two lots. In tables 21 and 22 are the data for the bins which were originally filled from bags marked U.S. No. 1 grade. In tables

TABLE 20.- SUMMARY OF INSPECTION OF STORE PACKAGES OF MAINE POTATOES,
ROUND WHITE VARIETIES 1/, AS FOUND IN 368 RETAIL STORES,
BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
U. S. No. 1	25	-	27	56	31
U. S. No. 1 except for soft rot	0	-	0	0	0
88 - 93 percent U. S. No. 1	50	-	38	44	43
82 - 87 percent U. S. No. 1	6	-	15	0	10
75 - 81 percent U. S. No. 1	6	-	12	0	8
Under 75 percent U. S. No. 1	13	-	8	0	8
Over 5 percent under 1-7/8 inches	6	-	0	0	2
Over 1 percent soft rot	0	-	0	0	0
Free from serious damage	81	-	35	89	59
Over 6 percent serious damage	12	-	27	0	18
<i>Number</i>					
Stores in group	123	48	154	43	368
Samples taken	16	0	26	9	51 <u>2</u> /

1/ The "Round White" classification includes only such potatoes as the enumerators were unable to identify positively as Green Mountain, Katahdin, or some other specific variety. It includes all mixed varieties.

2/ Included in the 51 samples are 28 peck packages, 21 half-pecks, and 2 smaller packages.

23 and 24 are the data for sample bins filled from bags of unknown grade markings, at least some of which may be presumed to have been grades lower than U.S. No. 1. Forty percent of the Green Mountain and 51 percent of the round white samples from bins filled from bags marked U.S. No. 1 were samples which actually met the requirements for U.S. No. 1 grade. If to these are added the samples which contained potatoes that were from 88 to 93 percent U.S. No. 1 quality, there were 73 percent of the Green Mountain and 71 percent of the round white samples which were 88 percent or more U.S. No. 1 quality. From one-fifth to one-third of the samples were free from serious damage, but 10 percent of the Green Mountain samples and 20 percent of the miscellaneous round white samples contained serious damage in excess of the 6 percent allowance for No. 2 grade.

Samples from bins filled from bags whose original grade marking was unknown (see tables 23 and 24) showed a very low percentage of samples actually met the specifications for U.S. No. 1 grade, and

averaged somewhat poorer quality than the store packages. Of course, from the standpoint of grade enforcement, there is no particular reason why these bin samples should meet any particular grade unless they were marked. As a matter of fact, in practically no instances were any grade markings found accompanying the bins. On the other hand, of course, from the standpoint of consumer satisfaction there are very good reasons why all bin potatoes should be of satisfactory quality. The several foregoing tables indicate that original shipping point quality deteriorated less along the route to the final consumer in the case of branded consumer packages than in the case of potatoes handled in bulk if it can be assumed that in both cases the potatoes were up to grade at the shipping point. More data are needed to show the relative quality of potatoes at each successive step in distribution, beginning with the shipping point, and to reveal as far as possible the extent and causes of damage incurred along the route. It is also indicated that in the packaging or distribution there is considerable decline in the

TABLE 21.- SUMMARY OF INSPECTION OF BULK BIN SAMPLES OF MAINE GREEN MOUNTAIN POTATOES,
FOR BINS ORIGINALLY FILLED FROM BAGS MARKED U. S. NO. 1 GRADE,
AS FOUND IN 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
U. S. No. 1	43	43	31	40	40
U. S. No. 1 except for soft rot	0	0	0	0	0
88 - 93 percent U. S. No. 1	22	29	50	40	33
82 - 87 percent U. S. No. 1	17	21	13	20	17
75 - 81 percent U. S. No. 1	9	0	6	0	5
Under 75 percent U. S. No. 1	9	7	0	0	5
Over 5 percent under 1-7/8 inches	4	7	0	0	3
Over 1 percent soft rot	4	7	0	0	3
Free from serious damage	48	21	19	20	31
Over 6 percent serious damage	13	7	6	20	10
<i>Number</i>					
Stores in group	123	48	154	43	368
Samples taken <u>1/</u>	23	14	16	5	58

1/ Of the 58 samples, 55 were 25-pound samples and 3 were 10-pound samples.

TABLE 22.- SUMMARY OF INSPECTION OF BULK BIN SAMPLES OF MAINE POTATOES,
ROUND WHITE VARIETIES 1/, FOR BINS ORIGINALLY FILLED FROM BAGS MARKED
U. S. NO. 1 GRADE, AS FOUND IN 368 RETAIL STORES,
BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
U. S. No. 1	44	100	63	45	51
U. S. No. 1 except for soft rot	0	0	0	0	0
88 - 93 percent U. S. No. 1	31	0	0	22	20
82 - 87 percent U. S. No. 1	13	0	12	33	17
75 - 81 percent U. S. No. 1	0	0	13	0	3
Under 75 percent U. S. No. 1	12	0	12	0	9
Over 5 percent under 1-7/8 inches	0	0	0	0	0
Over 1 percent soft rot	0	0	12	0	3
Free from serious damage	19	0	25	22	20
Over 6 percent serious damage	19	0	38	11	20
<i>Number</i>					
Stores in group	123	48	154	43	368
Samples taken <u>2/</u>	16	2	8	9	35 <u>2/</u>

1/ The "Round White" classification includes only such potatoes as the enumerators were unable to identify positively as Green Mountain, Katahdin, or some other specific variety. It includes all mixed varieties.

2/ Of the 35 samples, 30 were 25-pound samples, 3 were 15-pound samples, and 2 were 10-pound samples.

TABLE 23.- SUMMARY OF INSPECTION OF BULK BIN SAMPLES OF MAINE POTATOES, GREEN MOUNTAIN VARIETIES, FOR BINS ORIGINALLY FILLED FROM BAGS OF UNKNOWN GRADE, AS FOUND IN 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
U. S. No. 1	60	0	0	0	12
U. S. No. 1 except for soft rot	0	0	0	0	0
88 - 93 percent U. S. No. 1	0	38	67	33	33
82 - 87 percent U. S. No. 1	0	31	0	0	17
75 - 81 percent U. S. No. 1	0	31	0	0	17
Under 75 percent U. S. No. 1	40	0	33	67	21
Over 5 percent under 1-7/8 inches	40	15	0	67	25
Over 1 percent soft rot	0	0	0	0	0
Free from serious damage	20	38	0	0	25
Over 6 percent serious damage	40	38	33	67	42
<i>Number</i>					
Stores in group	123	48	154	43	368
Samples taken	5	13	3	3	24 ^{1/}

^{1/} Of the 24 samples, 19 were 25-pound samples, and 5 were 15-pound samples.

quality of the potatoes. If producers are interested in having potatoes reach consumers in as satisfactory form as possible, they must not only start off the potatoes at the shipping point in good condition, but also see to it that better methods of packaging and handling are adopted at shipping points, in transit, in the terminal wholesale markets, and in the retail stores.

VARIATIONS IN PRICES

While the price data obtained in this study provide certain significant and interesting illustrations of the behavior of prices, neither the primary objectives nor the scope of the study were such as to permit an intensive analysis of the many factors probably affecting potato prices in retail stores.

Retail prices at any one time varied within a relatively narrow range as between different organizations of the large chain systems and as between individual units of any one chain in the area. In fact, at any one time, the retail prices in the large chains usually were identical for a comparable quantity, package, and intended grade. Correspondence

in retail prices between chain organizations was closest in the case of branded peck consumer packages.

Prices at any one time varied most widely between independent stores and to a somewhat less extent between the several small or local chain organizations.

Table 25 indicates an upward trend in prices in the large chain organizations during the period of the study, with the trend clearer on branded pecks than on bulk potatoes.

With one exception, the upward trend of the prices in large chain stores was roughly paralleled by prices in the small or local chain organizations, for both packaged and bulk potatoes. The trend is not clearly demonstrable in the case of the independent stores.

Median retail prices on branded pecks were highest in the stores of the large chain organizations. It will be recalled that chain stores in general had somewhat better quality potatoes in such packages than independent stores.

In the case of potatoes sold in bulk, there was less difference between the

median retail prices in large chain stores and in independent stores. Here again it is worth while to recall that the quality of potatoes sold in bulk in the large chain organizations was shown to be no better than that of the potatoes sold in independent stores. Because of the limited sample and the multitude of factors affecting prices, however, no relationship between price and quality - in terms of official grade definitions - was discernible within the independent stores alone at this stage of the analysis.

In table 26 a more detailed analysis of the survey period is made to provide a time break for each change in either retail or wholesale prices for branded pecks as found in the large chain organizations. Gross margins, which as used here means the difference between the wholesale price delivered to the store and the retail price, varied more between independent than between chain stores. Perhaps it should be pointed out that the distributive functions performed within the gross margins are not strictly comparable as between independent and chain stores, since the activity of the latter group include varying degrees of wholesale re-

ceiving, jobbing and delivery not present in the independent retailers' functions.

Gross margins in the two kinds of stores did not always widen or contract at the same times. The margin on branded pecks usually was in the neighborhood of 8, 9, or 10 cents per peck in chain stores, and about 2 cents a peck narrower in the independent stores. Throughout the period studied, there were some independent stores buying potatoes at prices lower - and others at prices higher - than the average wholesale prices paid by the chain organizations.

Practically none of the wholesale prices reported by chains and very few of those reported by independents included any specific amounts to cover the cost of moving potatoes from the wholesale terminals to the individual stores. In the large chain organizations this cost was absorbed in the delivery expense of the entire organization; consequently, chain store margins here shown are overstated by the amount of the delivery cost. In the case of independent stores, delivery of potatoes to the store was usually made by the seller at no additional expense to the store.

TABLE 24.- SUMMARY OF INSPECTION OF BULK BIN SAMPLES OF MAINE POTATOES, ROUND WHITE VARIETIES 1/, FOR BINS ORIGINALLY FILLED FROM BAGS OF UNKNOWN GRADE, AS FOUND IN 368 RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEM	PERCENTAGE OF SAMPLES TAKEN FROM STORES IN GROUP				
	GROUP I INDEPENDENT STORES	GROUP II INDEPENDENT STORES	STORES OF LARGE CHAINS	STORES OF LOCAL CHAINS	ALL STORES
U. S. No. 1	27	0	60	0	33
U. S. No. 1 except for soft rot	0	0	0	0	0
88 - 93 percent U. S. No. 1	9	100	0	100	17
82 - 87 percent U. S. No. 1	9	0	0	0	6
75 - 81 percent U. S. No. 1	46	0	20	0	33
Under 75 percent U. S. No. 1	9	0	20	0	11
Over 5 percent under 1-7/8 inches	0	0	20	0	6
Over 1 percent soft rot	0	0	0	0	0
Free from serious damage	9	0	40	0	17
Over 6 percent serious damage	27	0	20	0	22
<i>N u m b e r</i>					
Stores in group	123	48	154	43	368
Samples taken	11	1	5	1	18 <u>1/</u>

1/ Of the 18 samples, 15 were 25-pound samples, and 3 were 15-pound samples.

TABLE 25.- RETAIL PRICES ON 15 POUNDS OF MAINE POTATOES OF U. S. NO. 1 STOCK, 1/ FOUND IN SAMPLE RETAIL STORES IN THE BOSTON METROPOLITAN AREA, MARCH-APRIL 1940

DATES OF INTERVIEWS	BRANDED CONSUMER PACKAGES IN -			BULK OR STORE PACKAGES IN -		
	Large chain stores	Local chain stores	Inde- pendent stores	Large chain stores	Local chain stores	Inde- pendent stores
<i>Number of stores supplying information:</i>						
March 14-21	39	1	15	18	2	22
March 22-April 1	83	10	13	43	12	18
April 2-12	31	9	18	18	10	37
<i>Range in retail prices (cents per 15 pounds):</i>						
March 14-21	39-41	45 <u>2/</u>	39-50	29-37	33-33	35-47
March 22-April 1	41-43	39-45	39-45	35-39	33-39	33-45
April 2-12	43-45	39-45	39-52	37-39	35-45	35-49
<i>Median retail prices (cents per 15 pounds):</i>						
March 14-21	41	45	43	37	33	39
March 22-April 1	43	41	40	37	35	37
April 2-12	45	43	42	39	39	39

1/ Potatoes as offered for sale were either marked U. S. No. 1 on the container or, in the case of bulk and store packages, the original shipping point package was so marked.

2/ Only 1 observation, therefore no range.

TABLE 26.- GROSS MARGINS 1/ ON MAINE POTATOES IN BRANDED CONSUMER 15-POUND PACKAGES AT RETAIL STORES INCLUDED IN THE MARCH STUDY, BOSTON METROPOLITAN AREA, 1940

DATES OF INTERVIEWS	PREVAILING RETAIL PRICE PER PECK IN STORES OF LARGE CHAINS	GROSS MARGIN, CENTS PER PECK									
		IN LARGE CHAIN ORGANIZATIONS						IN LOCAL CHAIN ORGANIZATIONS		IN INDEPENDENT STORES	
		A		B		C		Range	Median	Range	Median
		Range	Median	Range	Median	Range	Median				
	<i>Cents</i>										
March 14-15	39	6-6	6	-	-	-	-	-	-	-	-
March 16-21	41	7-7	7	3-9	9	-	-	11-11	11	1-16	9
March 22-29	43	7-9	9	7-11	11	9-12	11	5-11	9	4-10	5
April 1	43	8-8	8	10-10	10	9-11	10	8-10	9	4-9	6
April 2-5	45	8-10	10	8-12	10	11-13	12	5-11	9	4-12	7
April 8-12	45	9-9	9	9-11	10	9-11	11	8-11	10	2-12	8

1/ Gross margin is the difference between actual cost delivered to store and retail price.

Figure 2 shows graphically the general relationships of branded peck prices during three parts of the period studied. Individual ones of the large chain organizations are designated simply as A, B, and C. While retail prices between the large chains were quite uniform at any one time, the margins varied. The price trend was upward with few exceptions. The margins increased somewhat and became more uniform as between the large chain organizations.

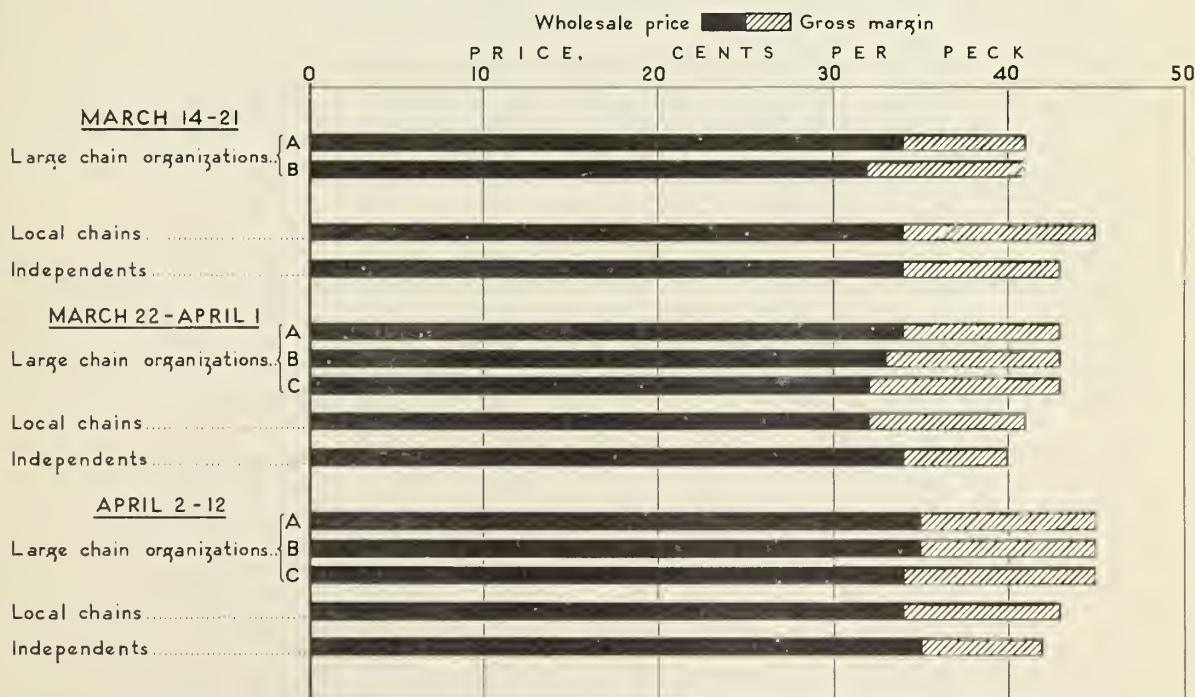
Similar price and margin relationships were exhibited in regard to Maine potatoes sold in bulk. When retail prices remained level while wholesale prices moved upward, margins, of course, narrowed until a readjustment was made in the retail price (table 27). Prices and margins again varied most between individual independent stores and least between the stores of one large chain and another. Margins on potatoes sold in bulk were narrower than on those sold in branded peck packages, during the period studied.

On the basis of the wide variations in prices that were observed between retail stores in March, there appears to have been an opportunity for the sale of potatoes to independent stores over a wider range in prices than the single factor of difference in quality would seem to justify. Presumably, much might be done in the way of stabilization of prices through a higher degree of unified action on the part of growers. Certainly it cannot be hoped that a commensurate premium for quality can consistently be obtained as long as prices are so subject to other considerations.

LIKELIHOOD OF STORE ATTRACTING CUSTOMERS Number of Fresh Vegetable and Fruit Items Carried

There are a number of possible reasons why the stores having greater sales of fresh fruits and vegetables per week might tend to capture larger and larger proportions of the total potato sales

FIGURE 2
MEDIAN RETAIL PRICES AND GROSS MARGINS ON BRANDED PECK PACKAGES OF MAINE POTATOES MARKED U.S.NO.1, FOUND IN RETAIL STORES INCLUDED IN THE STUDY, BOSTON METROPOLITAN AREA, MARCH AND APRIL, 1940



During the period of the study, many independent stores sold branded pecks at lower retail prices and on narrower margins than was done in chain stores. The three large chain organizations maintained retail prices in very close agreement with each other.

TABLE 27.- GROSS MARGINS ON 15 POUNDS OF MAINE POTATOES SOLD IN BULK OR STORE PACKAGES
OUT OF STOCK MARKED U. S. NO. 1 WHEN SHIPPED, AS SOLD IN SAMPLE RETAIL STORES
IN THE BOSTON METROPOLITAN AREA, MARCH-APRIL 1940

DATES OF INTERVIEWS	PREVAILING RETAIL PRICE PER PECK IN STORES OF LARGE CHAINS	GROSS MARGIN, CENTS PER 15 POUNDS									
		IN LARGE CHAIN ORGANIZATIONS						IN LOCAL CHAIN ORGANIZATIONS		IN INDEPENDENT STORES	
		A		B		C		Range	Median	Range	Median
		Range	Median	Range	Median	Range	Median				
	<i>Cents</i>										
March 14-19	37	7.7-9.7	9.7	8.0-10.8	8.0	-	-	-	-	2.8-11.8	7.5
March 20-22	37	9.4-9.4	9.4	7.2-9.2	9.2	-	-	5.0-5.5	5.2	3.0-16.2	7.5
March 25-29	37	6.2-9.2	8.5	6.5-9.2	8.5	6.0-9.0	7.0	2.8-8.5	8.2	0.8-12.8	7.0
April 1-2	37	7.8-8.8	7.8	7.8-9.2	9.2	7.0-7.0	7.0	6.8-13.2	8.0	5.0-13.0	6.8
April 3-5	39	8.4-9.4	9.4	-	-	8.0-8.0	8.0	2.8-13.5	6.8	4.0-11.5	7.0
April 8-12	39	7.5-9.3	9.3	10.5-10.5	10.5	7.5-7.5	7.5	6.5-10.5	7.2	1/-17.2	6.0

TABLE 28. - NUMBER OF FRESH VEGETABLE AND FRUIT ITEMS CARRIED IN RELATION TO AMOUNT OF FRESH FRUIT AND VEGETABLE SALES, FOR 356 1/ RETAIL STORES IN THE BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	GROUP AVERAGE OF NUMBER OF ITEMS CARRIED PER STORE							
	FRESH VEGETABLES				FRESH FRUITS			
	Independent stores		Chain stores		Independent stores		Chain stores	
	Group I	Group II	Large chain	Local chain	Group I	Group II	Large chain	Local chain
\$1-\$9	2	1	-	-	2/	2/	-	-
\$10-\$24	4	4	3/ 11	2/	3	2	3/ 6	-
\$25-\$49	8	6	6	6	3	3	4	4
\$50-\$99	9	8	10	10	4	4	4	5
\$100-\$199	14	12	13	13	5	6	5	5
\$200-\$499	17	17	16	17	7	7	6	6
\$500-\$999	18	-	17	18	7	-	6	7
\$1,000 or more	21	-	19	21	8	-	7	8

1/ 12 stores did not give complete information.

2/ Less than one item, on the average. Blank spaces indicate that there were no stores represented in such groups.

3/ Only 1 store in this group.

business, even though that potato business might not increase in proportion to the increase in sales of the fresh fruit and vegetable department as a whole. For example, it seems logical to assume that customers would prefer to shop at a store which carried a rather complete assortment of items, so that all needs might be met in one shopping trip. Again, it is possible that the number of fresh fruit and vegetable items displayed and the location of the display influence customers in their selection of stores at which to trade.

A more detailed examination of the stores indicates that the number of fruit and vegetable items carried tends to increase as the fresh fruit and vegetable sales increase. The average number of fresh vegetable items carried per store varied from about 2 in the smallest stores to around 20 in the stores doing the greatest volume of business in fresh fruits and vegetables (table 28). Likewise the number of fresh fruit items carried ran from less than 1 to around 7 or 8. Provided the sales volume of fresh fruits and vegetables was the same, there was remarkable similarity in the number of items in the several classes of stores shown in table 28, in spite of variations between groups in the proportion of stores carrying meats or groceries. The relationship of sales volume to number of items

carried is shown graphically for group I independent stores in figure 3. A potato customer who is interested in shopping where a wide choice of fruit and vegetable items is available would tend to select a store selling a large volume in this department. In added number of choices available, however, the customer would, as a rule, have little to gain by choosing a store with a \$1,000 weekly sales volume in this department in preference to a store with a \$400 volume.

The nature of the commodity itself, and of the consumer demand for it, appear to be influential in determining the relative frequency of its occurrence in retail stores. Because of the manner of selection of the store sample, all stores carried potatoes. Other fruit and vegetable items were carried in varying degrees of frequency; some were carried almost always, others almost never. There were wide differences between items in the degree to which their relative frequency of occurrence was associated with the total volume of the fresh fruit and vegetable business done in the store. Onions were carried in practically every combination store regardless of size (table 29). Lettuce appeared in about two-thirds (68 percent) of the combination stores which sold less than \$50 per week of fresh fruits and vegetables; but in all of such stores selling \$100 or more per week in

this department. Grapefruit appeared very much like lettuce in this respect. Items appearing in stores with the greatest frequency were those which usually showed the least relationship between the total volume of fruits and vegetables sold, and the frequency of occurrence. The reverse also was true. The significance of these relationships to persons interested in the marketing of potatoes through retail stores lies in the demonstration of the fact that potatoes compete for the consumer's attention with certain common fruits and vegetables in nearly all stores regardless of size. In the larger stores, a wide assortment of possible choices is available.

Probably several other factors are associated with the relative frequency of occurrence of specific items in various types of stores. For example, expensive and unusual items are probably found rela-

tively most often in areas of predominantly high incomes. It is impossible, within the scope of this study, to pursue such relationships far. However, it is desirable to point out what appears to be a characteristic difference between chain and independent stores in the relative frequency of occurrence of certain items.

In table 30 are shown those items for which a significant difference between chain and independent stores was observed. The comparison has been limited to combination stores selling from \$200 to \$499 worth of fresh fruits and vegetables per week per store. Items shown with greater frequency in the chain stores are the more expensive or unseasonable items at this time of year, while those shown with greater frequency in the independent stores are either cheaper items or a cheaper form of the same item.

TABLE 29.- RELATIVE FREQUENCY OF OCCURRENCE OF SELECTED ITEMS SHOWN IN RELATION TO TOTAL SALES OF FRESH FRUITS AND VEGETABLES IN COMBINATION ^{1/} RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEMS SELECTED	PERCENTAGE OF STORES IN GROUP CARRYING ITEM LISTED, ACCORDING TO GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE			
	\$1 - \$49	\$50 - \$99	\$100 - \$199	\$200 or more
	<i>P e r c e n t</i>			
<i>Vegetables:</i>				
Dry onions	100	97	100	100
Lettuce	68	84	100	100
Spinach	61	61	80	87
Asparagus	13	45	73	86
Sweetpotatoes	16	0	50	82
Peas	3	10	30	78
Kale	3	3	17	23
Brussels sprouts	0	3	17	22
Beets	3	13	3	18
<i>Fruits:</i>				
Oranges	90	100	100	99
Apples	84	87	100	99
Grapefruit	71	81	100	98
Bananas	58	77	93	98
Rhubarb	13	39	57	92
Pears	19	32	50	72
Pineapple	3	19	47	81

^{1/} Combination stores handled groceries and fresh meats in addition to fresh fruits and vegetables; both chain and independent stores are included. Number of stores in sample:

31

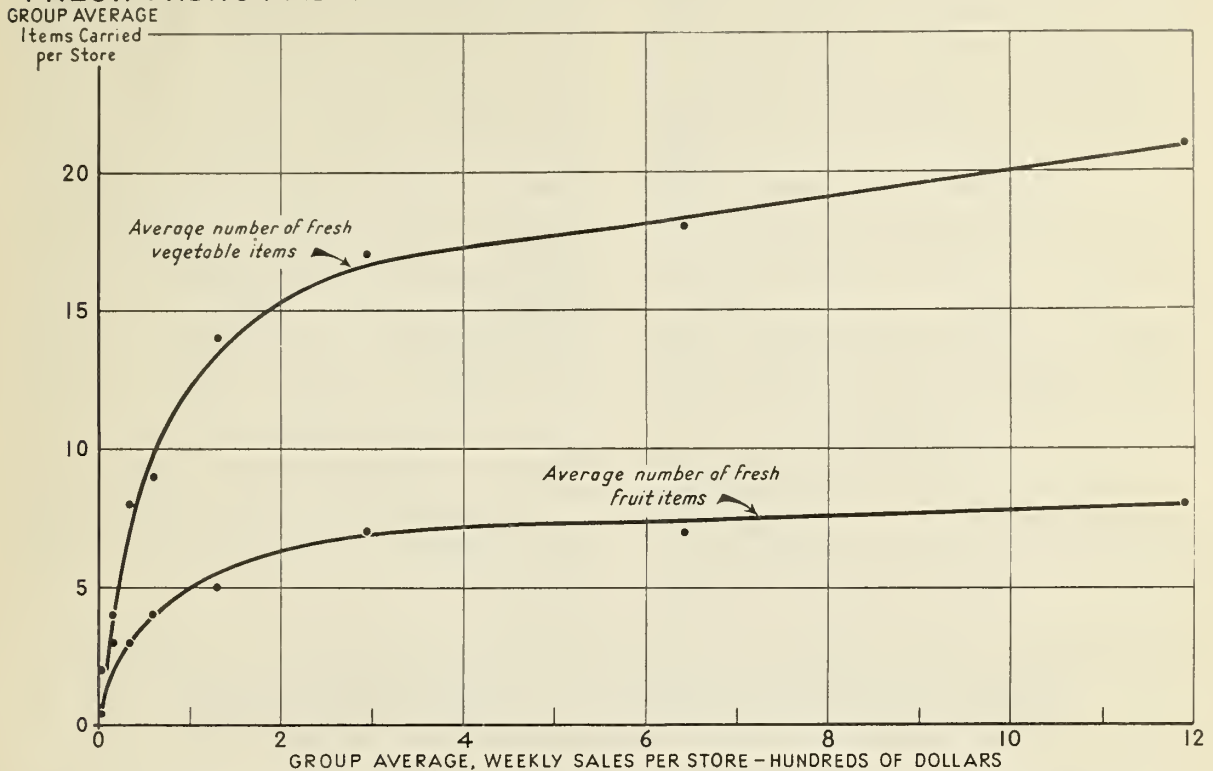
31

30

88

FIGURE 3

RELATIONSHIP OF NUMBER OF ITEMS CARRIED TO TOTAL SALES OF FRESH FRUITS AND VEGETABLES FOR GROUP I INDEPENDENT STORES



The number of fresh fruit and vegetable items carried per store is strongly associated with the total dollar sales of all such items, especially for stores selling less than \$100 worth per week per store

Even within the limited group used in table 30, there was considerable difference in the average rentals paid between the several areas in which the stores were located. In general, larger proportions of the independent than of the chain stores were located in the areas of low rentals ^{14/}. The income levels of the store patrons undoubtedly influenced the selection of items carried.

Except for the 12 items listed in table 30, there appeared to be no significant difference between chain and independent stores, as such, in the number and selection of fresh fruits and vegetables carried in March.

What are the essential differences between various types of stores, such as groceries, meat markets, etc., as to the

^{14/} The distribution of stores used in table 30 according to average rentals paid by families in the areas in which stores were located is shown below:

WEIGHTED AVERAGE WEEKLY RENTAL PAID	PERCENTAGE OF STORES PAYING INDICATED RENT	
	30 large chains	16 independent stores
\$29.99 or less	3	31
\$30.00-\$39.99	24	13
\$40.00 or more	10	12
Suburban areas (rentals unknown)	63	44
All stores	100	100

Rental information derived from "Report on Real Property Inventory, Boston, 1934."

kinds of fruits and vegetables carried which might conceivably compete with potatoes for the customer's shopping money? Table 31 includes all of the fresh fruit and vegetable items commonly found in the sample stores. In this table chain and independent stores are combined without distinction, but separate groups are shown for stores classified according to whether or not they handled certain lines, such as groceries and fresh meats. Both the actual and the relative number of times that each commodity was found in a store are shown. Dry onions, cabbage, bunched carrots, and lettuce were being handled in over 80 percent of all stores combined. Of the fruits, oranges, apples, grapefruit, and bananas were each handled in over 80 percent of all stores combined.

Comparing the several types of stores indicated in table 31, it appears that almost every item listed was handled in the lowest proportion of stores in the class

of meatless grocery stores (type II). As between the other types of stores shown, there was little difference for the commodities most frequently handled; for items of less frequent occurrence, however, some sharp differences appeared. For example, stores with fresh meats but no groceries (type III) were equal to or greater than other stores in the proportion of stores carrying sweet potatoes, peas, and kale, which were items of infrequent occurrence in most stores. Specialized fruit and vegetable stores showed the highest proportion of stores handling each of over half of all the vegetable items, and were particularly outstanding for radishes, escarole, cucumbers, and green beans; they also were highest in the proportion of stores carrying each fruit except oranges and apples. Obviously, potatoes will find their greatest competition from other fresh fruits and vegetables in stores of this latter type.

TABLE 30. - COMPARISON OF RELATIVE FREQUENCY WITH WHICH SELECTED ^{1/} FRUITS AND VEGETABLES WERE CARRIED IN CHAIN AND IN INDEPENDENT COMBINATION ^{2/} RETAIL STORES SELLING FRESH FRUITS AND VEGETABLES IN THE AMOUNT OF \$200-\$499 WEEKLY PER STORE, BOSTON METROPOLITAN AREA, MARCH 1940

ITEMS FOR WHICH SIGNIFICANT DIFFERENCES IN FREQUENCY WERE OBSERVED	PERCENTAGE OF STORES CARRYING ITEM	
	30 stores of large chain systems	16 independent stores
	<i>Percent</i>	
<i>Vegetables:</i>		
Cucumbers	93	75
Cauliflower	93	75
Asparagus	87	75
Peas	93	56
Green beans	20	38
Beets	20	6
Kale	10	48
Lima beans	7	19
Unusual items ^{3/}	13	0
<i>Fruits:</i>		
Bananas	100	88
Pineapple	80	69
Unusual items ^{3/}	23	0

^{1/} The items selected were those which showed a relative frequency in chain stores different from that in independent stores by an amount greater than could be produced by an accidental variation of one store in either or both of the groups of stores.

^{2/} Combination stores carried groceries and fresh meats in addition to fruits and vegetables.

^{3/} Items not named specifically in the list of 31 more common ones shown in table 31.

In figure 4 the 33 items are shown according to their relative frequency of occurrence in combination and in grocery stores, using the data for types I and II of table 31. This illustrates the relative occurrence of each item in the two types of stores at the same time. It will be noted that items appearing in or near the central part of the chart are those which appeared much more frequently in combination stores than in grocery stores. The differences are probably due to several factors associated with the presence or absence of fresh meat in the store and the general income level of the customers, several of the items being natural complements to a meat dinner.

Other Lines Carried

CANNED FRUITS AND VEGETABLES

Canned fruits and vegetables are widely recognized competitors of the fresh articles. With respect to potatoes, of course, the competition is indirect, though none the less real. An examination of the stores as to whether or not they carried canned fruits and canned vegetables showed that all chain stores carried such items. Among the independent stores there were 22 which did not carry canned fruits and canned vegetables. Of these 22, there were 19 specialized fruit and vegetable stores, 2 were stores which were primarily meat markets, and 1, only, was primarily a grocery store. The latter 3 cases cited all occurred in stores selling less than \$100 worth of fresh fruits and vegetables per week per store.

FRUIT JUICES

A line of one or more fruit juices was carried by all but 37 of the 368 stores in the sample. However, more than one-half (21) of these 37 stores did not carry groceries at all and so could hardly be expected to carry fruit juices, as a rule. This leaves only 16 stores which carried groceries, but did not carry fruit juices; 12 of these 16 stores were selling less than \$100 worth of fresh fruits and vegetables per week per store.

FROZEN FOODS

Only 11 of the entire 123 group I independent stores carried frozen foods; all but one of these 11 were stores selling at least \$100 worth of fresh fruits and vegetables per week per store. None of the group II ^{15/} independent stores carried frozen foods. Six of the 43 stores belonging to small chain systems carried frozen foods, and of these 6 all but 1 were stores selling at least \$100 worth of fresh fruits and vegetables per week.

The proportion of stores which carried frozen foods was much larger for the stores of the large chain systems, however. Thirty-four of the 115 such stores, or 22 percent, carried frozen foods, and again all but one of these were stores which sold \$100 or more worth of fresh fruits and vegetables per week per store. For similar stores, the proportion of stores carrying frozen foods tended to increase from group to group as the fruit and vegetable sales per store increased. Using, for example, the stores belonging to the large chain systems, the increasing proportion of stores selling frozen foods is shown in table 32.

Pursuing the idea of the general attractiveness of the fresh fruits and vegetables department a little farther, it is relevant to note the number of items displayed in the fresh fruits and vegetables display, the location of display, and the facts as to the inclusion or exclusion of potatoes in that display, in the several types of stores and in relation to the volume of fresh fruits and vegetables sold in the stores.

Number of Items Included in Display

While there are too few stores included in the total sample to provide adequate comparisons in the detail that might be desired, a careful study of the data reveals no consistent or significant difference between independent stores and chain stores in the number of fresh fruit and vegetable items displayed ^{16/} for

^{15/} Group II independent stores were those not mentioned by consumers as the source of their potato supply.

^{16/} Fresh fruit and vegetable items carried in stock were considered to be on display only when placed or arranged in such a manner as to be readily visible to the customer and likely to attract attention. Obviously, a bag of potatoes set behind the counter merely for the convenience of the storekeeper in filling orders could not be considered as on display.

FIGURE 4

RELATIVE FREQUENCY OF OCCURRENCE OF 33 ITEMS IN 180 COMBINATION
GROCERY-AND-MEAT STORES AND IN 160 GROCERY STORES,
BOSTON METROPOLITAN AREA, MARCH 1940

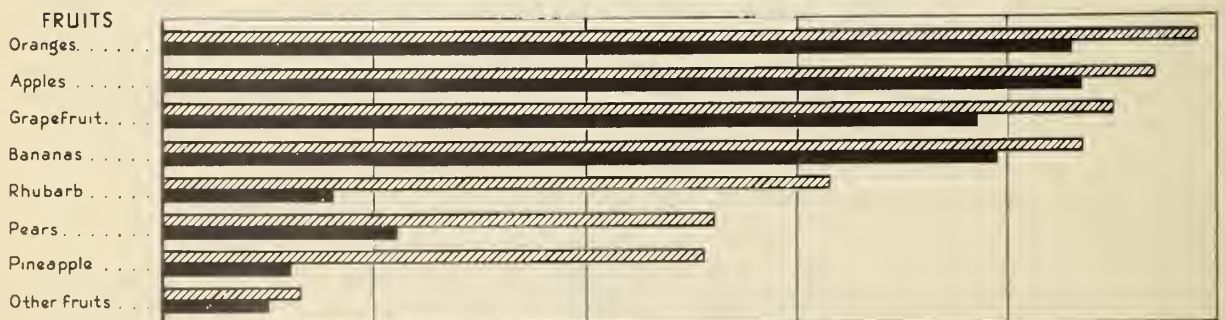
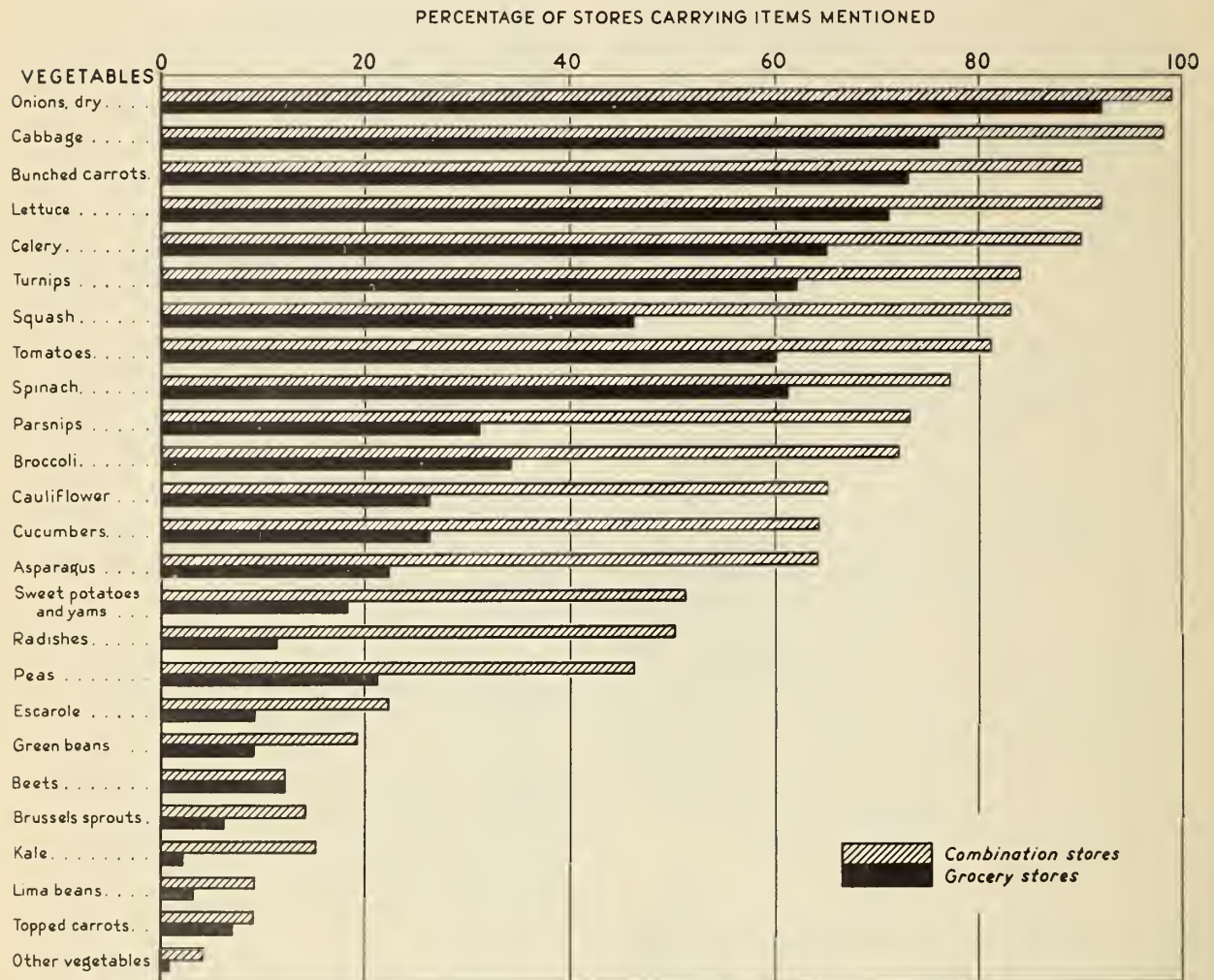


TABLE 31. - ACTUAL AND RELATIVE FREQUENCY OF OCCURRENCE OF 33 FRESH FRUIT AND VEGETABLE ITEMS IN SAMPLE STORES OF DIFFERENT TYPES, BOSTON METROPOLITAN AREA, MARCH 1940

ITEMS IN ORDER OF OCCURRENCE IN ALL STORES COMBINED	ACTUAL OCCURRENCE BY TYPE OF STORES <u>1/</u>					RELATIVE OCCURRENCE BY TYPE OF STORE <u>1/</u>				
	I	II	III	IV	All stores <u>2/</u>	I	II	III	IV	All stores <u>2/</u>
<i>Vegetables:</i>										
Onions, dry	179	148	5	20	355	99	92	100	100	97
Cabbage	176	121	5	19	324	98	76	100	95	88
Carrots, bunched	163	117	4	18	305	91	73	80	90	83
Lettuce	165	114	4	18	304	92	71	80	90	83
Celery	162	104	4	18	290	90	65	80	90	79
Turnips	152	99	4	13	270	84	62	80	65	73
Tomatoes	145	96	4	18	265	81	60	80	90	72
Spinach	139	97	3	16	257	77	61	60	80	70
Squash	149	73	4	14	243	83	46	80	70	66
Broccoli	129	55	3	14	204	72	34	60	70	55
Parsnips	131	50	4	17	203	73	31	80	85	55
Cucumbers	116	42	3	17	179	64	26	60	85	49
Cauliflower	117	41	3	10	173	65	26	60	50	47
Asparagus	116	35	3	13	169	64	22	60	65	46
Sweet potatoes <u>3/</u>	92	29	4	16	143	51	18	80	80	39
Peas	82	33	3	7	126	46	21	60	35	34
Radishes	90	17	2	16	126	50	11	40	80	34
Green beans	35	15	2	12	65	19	9	40	60	18
Escarole	39	15	1	9	65	22	9	20	45	18
Beets	22	19	1	6	49	12	12	20	30	13
Brussels sprouts	25	9	1	5	40	14	6	20	25	11
Kale	27	3	2	6	38	15	2	40	30	10
Carrots, topped	16	11	0	5	32	9	7	0	25	9
Lima beans	17	5	0	2	24	9	3	0	10	7
Other vegetables	7	1	0	3	12	4	1	0	15	3
<i>Fruits:</i>										
Oranges	176	137	5	19	340	96	86	100	95	92
Apples	170	139	5	19	336	94	87	100	95	91
Grapefruit	163	123	4	18	311	88	77	86	90	85
Bananas	156	127	3	18	306	84	79	71	90	83
Rhubarb	114	26	3	13	159	60	16	71	65	43
Pears	94	36	3	18	152	51	22	71	90	41
Pineapple	92	19	2	13	127	48	12	57	65	35
Other fruits	24	16	0	4	45	13	10	14	20	12

1/ Types of stores:

- I - Combination stores, of which there were 180, carried fresh meat and groceries in addition to fresh fruits and vegetables.
- II - Grocery stores, of which there were 160 in the sample, were similar to combination stores except that no fresh meats were carried.
- III - Meat markets, of which there were 5, also carried fresh fruits and vegetables but no groceries.
- IV - These stores, of which there were 20, carried only fresh fruits and vegetables.

2/ All stores include 3 stores for which the lines handled' were unknown.

3/ Includes yams.

stores of a similar character selling approximately the same volume of fresh fruits and vegetables per week. It will be recalled that because of the method of selection, all of these stores carried potatoes. There appears to be some indication that for stores with an equal amount of fresh fruits and vegetables sales per week per store, the store which tends to specialize in fresh fruits and vegetables and nothing else, usually has a greater number of items displayed. The average relationship of the sales of fresh fruits and vegetables sold per store to the number of fresh fruit and vegetable items displayed is shown in table 33 for all stores. The number of items displayed ranged from nothing in the case of stores

There was no great difference between chain and independent stores in this respect. Eighty-six percent of the independent stores and 89 percent of all chain stores included potatoes in the fresh fruit and vegetable display.

Credit and Delivery Policy

Another factor which probably influences the attractiveness of a particular store for certain customers is the service with respect to credit sales and free delivery for customers. This factor operates both as a cause and a result. The customer who desires to buy on credit would tend to go to stores giving credit and at the same time stores with a certain type of customer would be most likely to

TABLE 32. - PROPORTION OF RETAIL CHAIN STORES CARRYING FROZEN FOODS, IN RELATION TO THE AMOUNT OF FRESH FRUITS AND VEGETABLES SOLD WEEKLY PER STORE, FOR 154 SAMPLE STORES BELONGING TO THE THREE LARGEST CHAIN ORGANIZATIONS, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES PER STORE OF FRESH FRUITS AND VEGETABLES	TOTAL NUMBER OF STORES IN SALES GROUP	PERCENTAGE OF STORES WHICH CARRIED FROZEN FOODS
	<i>Number</i>	<i>Percent</i>
\$10-\$24	1	0
\$25-\$49	7	0
\$50-\$99	38	3
\$100-\$199	42	2
\$200-\$499	42	40
\$500-\$999	19	58
\$1,000 or more	5	80
All stores	154	22

which had no fresh fruit and vegetable display to 49 with an average of about 16 items. None of the stores which sold as much as \$50 worth of fresh fruits and vegetables per week were without a fresh fruit and vegetable display. The average number of items displayed ranged from 2 for the stores selling less than \$10 worth per week to 33 for the stores selling \$1,000 worth of fresh fruits and vegetables per week per store. Not one of the stores belonging to the large chain systems was without a fresh fruit and vegetable display, and only 4 out of the 197 stores belonging to the smaller or local chain stores were without such a display. Potatoes were included in 87 percent of the fresh fruit and vegetable displays.

give credit. The facts of significance to persons interested in selling potatoes are the credit and the delivery policies of stores selling the greatest amounts of fresh fruits and vegetables.

The data in table 34 show that 20 percent of the independent stores and nearly three-fourths of all the chain stores sold on a cash basis only. In both the independent stores and the chain stores included in the study, the proportion of stores in each sales group that sold on a cash basis generally increased with the increasing volume of fresh fruits and vegetables sold, while the proportion of stores making some sales on credit declined. Nearly half of the independent

TABLE 33. - RELATION OF WEEKLY SALES OF FRESH FRUITS AND VEGETABLES TO NUMBER OF FRESH FRUIT AND VEGETABLE ITEMS DISPLAYED, FOR 357 RETAIL STORES 1/, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	NUMBER OF STORES REPORTING	NUMBER OF FRESH FRUIT AND VEGETABLE ITEMS DISPLAYED PER STORE	
		Range	Average
\$1-\$9	22	0-13	2
\$10-\$24	24	0-15	5
\$25-\$49	40	0-15	9
\$50-\$99	72	4-25	12
\$100-\$199	79	7-32	18
\$200-\$499	73	7-34	23
\$500-\$999	30	15-40	24
\$1,000 or more	17	23-49	33
All stores	357	0-49	16

1/ 11 stores did not provide information complete in this regard.

stores furnishing credit sold on credit at least half of their total sales.

On the other hand, the credit sales of most of the chain stores that made sales on credit were less than 25 percent of their total sales. The greater degree of credit extension in the case of the independent stores than in the chain stores is probably an additional method of competition for business. However, both independent and chain stores with small volume, usually located in the lower rental areas, appear to have found it to their advantage to furnish credit to an appreciable extent.

In the free delivery of groceries for the customers, there was much less variation between the independent and chain stores (see table 35). All but about one-fourth of all the stores included in the survey provided some free delivery service for their customers. However, most of the stores which delivered some groceries free for their customers made such deliveries on not over 24 percent of their total sales.

It is the policy of the large chain systems in the Boston metropolitan area to sell on a cash and carry basis. However, local managers of individual store units are permitted to extend credit and delivery service, within certain limits, upon their own responsibility and discretion. A similar policy is followed in a few of the local chain systems, while in

others the company concerned assumes responsibility for such credit and delivery service as they permit their local units to extend.

SUMMARY

This report summarizes a survey of the quantity, quality, and methods of handling potatoes in 368 retail stores in the Boston metropolitan area in March 1940. This is one part of an analysis of marketing Maine potatoes in that market, undertaken jointly by the Maine Agricultural Experiment Station and the Cooperative Research and Service Division of the Farm Credit Administration, United States Department of Agriculture.

Retail stores which sold the largest amounts of fresh fruits and vegetables per week in March usually were also the stores which sold the most potatoes. However, the pounds of potatoes sold per dollar of total sales of fruits and vegetables were less in such stores than in stores doing a smaller volume of fruit and vegetable business. One reason for this fact is the larger number of fruit and vegetable items carried in the bigger stores. Stores selling a large total volume of fresh fruits and vegetables per week are likely to specialize in that department and to sell more fresh fruits and vegetables in relation to sales of other items than do stores selling a small quantity of fresh fruits and vegetables per week. Large sales of fresh fruits and vegetables per

store apparently result not only from sales of increased quantities of each item, but also from an increase in the number of items. Consequently, increases in sales of potatoes cannot be expected to maintain an equal ratio with increases in sales of all fresh fruits and vegetables.

The actual quantity of potatoes sold in a store may be more significant than the relative quantity compared to other items sold. For example, a store selling 2,000 pounds of potatoes and \$500 worth of all fruits and vegetables a week is much more important to the potato industry than one selling only 350 pounds of potatoes and \$25 worth of all fruits and vegetables a week, even though the ratio of pounds of potatoes to dollars of fruits and vegetables may be only 4 to 1 in the first store and 14 to 1 in the second. It is also true that the store with the greater number of customers, probably reflected in considerable degree by total sales of all items, is in the better position to sell potatoes or any other item of common appeal.

The stores which sold the most fruits and vegetables, including potatoes, were usually found in areas of medium-to-high consumer incomes, as indicated by average rentals paid for family dwelling units in the neighborhoods in which the stores were located. Retail stores were relatively scarce in areas of highest family-unit rentals, probably because of zoning restrictions and lack of density of population.

Most storekeepers stated their customers' preferences for all-purpose potatoes to be primarily potatoes from Maine, of 2-1/4 inches or more diameter, and in a 15-pound quantity at a single purchase. Small quantities per purchase found favor relatively more often in small stores than in the larger ones. For baking, customers were said to prefer Maine potatoes in 58 percent and Idaho potatoes in 27 percent of the stores reporting preferences. The proportion of storekeepers giving Idaho as their customers' preferred source of baking potatoes was higher in the stores having the greater dollar sales of fresh

TABLE 34. - PERCENTAGE DISTRIBUTION OF STORES ACCORDING TO RELATIVE AMOUNT OF TOTAL SALES MADE ON CREDIT, IN RELATION TO TYPE OF STORE AND AMOUNT OF FRESH FRUITS AND VEGETABLES SOLD: 357 ^{1/} RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	NUMBER OF STORES INCLUDED IN SALES GROUP	PERCENTAGE OF STORES IN SALES GROUP MAKING CREDIT SALES IN THE FOLLOWING PERCENTAGES OF TOTAL SALES					
		^{2/} 0	1-24 percent	25-49 percent	50-74 percent	75-100 percent	All stores
<i>Independent stores:</i>							
\$1-\$99	97	15	22	25	28	10	100
\$100-\$199	31	16	16	23	35	10	100
\$200 or more	40	35	25	12	23	5	100
All independents	168	20	22	21	28	9	100
<i>Stores of local chains:</i>							
\$1-\$99	19	37	32	10	16	5	100
\$100-\$199	6	17	33	0	50	0	100
\$200 or more	16	63	19	6	6	6	100
All local chains	41	44	27	7	17	5	100
<i>Stores of large chains:</i>							
\$1-\$99	44	64	23	11	2	0	100
\$100-\$199	41	83	7	7	3	0	100
\$200 or more	63	92	6	0	2	0	100
All large chains	148	81	12	5	2	0	100

^{1/} 11 records were incomplete in this respect.

^{2/} Cash sales only made.

fruits and vegetables. Most of the size preferences for baking potatoes were reported by storekeepers to run from 2-1/2 to 2-3/4 inches. While 15 pounds was the one single quantity most often stated by storekeepers as preferred by customers when buying baking potatoes, the combination of all other specific quantities (such as 7-1/2 pounds, 5 pounds, and smaller quantities) accounted for the statements of 57 percent of all the storekeepers.

A little more than one-fourth of all the stores included in the survey provided their customers with a possible choice between potatoes from more than one State or area of production. Larger stores provided such a choice relatively much more often than did the smaller stores. Maine potatoes were available in all but 2 stores.

In about two-thirds of the sample independent stores, potatoes were sold only in bulk or in store packages unmarked

as to grade during March. On the other hand, about 95 percent of the chain stores carried potatoes both in bulk and in branded packages. The proportion of stores handling bulk potatoes only was much lower in the large stores than it was in smaller stores.

Potatoes were sold mostly in bulk or in store packages in 85 percent of the independent stores, and in 58 percent of the chain stores. Branded consumer packages were most popular in 42 percent of the chain stores but in only 15 percent of the independents. Fifteen pounds was the quantity most frequently sold, whether in bulk, in store packages or in branded consumer packages. Small quantities, less than 7-1/2 pounds per sale, were less popular in large stores than in smaller stores. Small stores in general were located in the lower rental areas.

Sample inspections of Maine potatoes offered in retail stores showed the quality to be equal to the official require-

TABLE 35. - PERCENTAGE DISTRIBUTION OF STORES ACCORDING TO RELATIVE AMOUNT OF TOTAL SALES DELIVERED FREE FOR CUSTOMERS BY THE STORE, IN RELATION TO TYPE OF STORE AND AMOUNT OF FRESH FRUITS AND VEGETABLES SOLD; 361 ^{1/} RETAIL STORES, BOSTON METROPOLITAN AREA, MARCH 1940

GROUP RANGE IN WEEKLY SALES OF FRESH FRUITS AND VEGETABLES PER STORE	NUMBER OF STORES INCLUDED IN SALES GROUP	PERCENTAGE OF STORES IN SALES GROUP MAKING FREE DELIVERIES ON THE FOLLOWING PERCENTAGES OF TOTAL SALES					
		^{2/} 0	1-24 percent	25-49 percent	50-74 percent	75-100 percent	All stores
<i>Independent stores:</i>							
\$1-\$99	96	43	27	12	14	4	100
\$100-\$199	31	10	16	26	26	22	100
\$200 or more	40	2	25	25	33	15	100
All independents	167	27	24	18	20	11	100
<i>Stores of local chains:</i>							
\$1-\$99	19	5	37	32	26	0	100
\$100-\$199	6	0	17	0	66	17	100
\$200 or more	16	25	25	19	31	0	100
All small	41	12	30	22	34	2	100
<i>Stores of large chains:</i>							
\$1-\$99	46	9	39	33	17	2	100
\$100-\$199	42	19	33	22	19	7	100
\$200 or more	65	49	25	18	8	0	100
All large	153	29	31	23	14	3	100

^{1/} 7 records were incomplete in this respect.

^{2/} No delivery.

ments for U.S. No. 1 grade more often in the branded consumer packages than in the 100-pound burlap bags, the store packages or the bulk bins.

There was a broad range in retail potato prices between the various independent stores at any one time during March; between stores of the several large chains, however, there was very little difference. The margins between the wholesale cost of potatoes delivered to the store and the retail price to customers varied between stores of the several chain organizations, but even more so between independent stores. In general, independent stores received somewhat smaller margins on potatoes than did the chain stores. During March, the trend in retail prices for potatoes appeared to be upward. When a chronological series of prices was available, as in the case of the large chain systems, the wholesale price usually moved first, thus temporarily reducing the stores' margins, and adjustments in retail prices were made later.

Within the limits of the data, no consistent relationship was discovered between the retail potato prices and the quality of the potatoes being sold, judging the potatoes solely according to official grade standards.

Because of the wide range in prices and margins at retail stores, there appears to be an opportunity for a sales agency representing growers to do much in the way of stabilizing wholesale prices paid by retailers if sufficient volume can be controlled. At present, so many other factors are influencing variations in price that a consistent premium for quali-

ty would be hard to obtain without some control over the wholesale market.

If growers or their representatives ever decide upon educational and sales promotional work with retailers for the purpose of pushing their own brands or the products from their own production area, they will probably find their most productive sphere in the larger stores of the medium and medium-to-high family rental areas. At the same time, any good ideas demonstrated in stores of this nature are almost sure to be copied as far as possible in the smaller stores, where the sale of potatoes makes up a larger proportion of total sales.

Both the consumer and the retail store surveys have shown that the requirements of consumers in the Boston metropolitan area for potatoes may easily be, and in general have been, met from potatoes produced in Maine. Quality inspections show room for improvement in grading at shipping point, particularly as to uniformity in size; they also show the need for better handling in transit, in the wholesale markets and in the retail stores. A consistently good, 15-pound branded package of potatoes of rather uniform size and not less than 2-1/4 inches in diameter probably would overcome the present prejudice of disappointed customers toward closed packages in general. A local representative of the growers could be decidedly helpful in seeing to it that packages placed in stores were exactly as represented and at least as good quality as customers are led to believe. The success of certain chain organizations with branded consumer packages, of uniform size and quality, reveals the possibilities in this direction if the market is given local supervision of quality and price.



R. S. R. R.

